AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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Contents of this Number.

Aconite Leaved Geranium.....*Illustrated*..300
Agriculture of the Nile .....*Illustrated*..283
American Agriculturist Experimental Farm.....291
Among the Farmers, No. 31.—Wethersfield—Onions—Farm of S. M. & D. Wells—Home-made Things..294
Bee Notes for August.....289
Beet-Sugar Industry of France.....288
Boys and Girls.—Young Microscopists—Spittle Insects—Curious Discoveries—Ivy Disease; Doctor's Chat; Aunt Sue; Large Insects; Bryant, 9 *Illus.*..305-308
Country Parsons.....298
Cow Milkers.....290
Cultivator for Small Grains.....*Illustrated*..299
Egg Tester.....*Illustrated*..291
Emasculate the Dog.....299
English Notes 290
Farm Dog, A Useful.....*Illustrated*..293
Farm Work in August.....283
Ferry-boat.....2 *Illustrations*..297
Fruit Garden for August.....285
Flower Garden and Lawn for August.....285
Gathering Clover-seed.....*Illustrated*..296
Grades as Milkers.....295
Greenhouse and Window Plants.....285
Harrow for All Work.....*Illustrated*..296
Household Department.—Home Topics.—Co-operation in Taking Homesteads—Maternity Alleviated—Clothes Moth; Household Notes and Queries..303-305
Humbugs.....287
Japan Iris, New Varieties.....302-303
Kitchen and Market Garden.....303
Laundry Machinery.....2 *Illustrations*..290
Lock-up Nest Box .....*Illustrated*..297
Market Reports.....285
Notes From the Pines.—Deutzia Crenata—Wietarias—Dyehouse Cherry—Hall's Honeysuckle—Wire Work on the Veranda—Kentish Invicta Pea.....302
Pea Fowl.....296
Pulling Stumps.....*Illustrated*..296
Pig-Pen—A Cheap One.....2 *Illustrations*..297
Quack Grass, How to Kill.....2 *Illustrations*..299
Quinces and their Cultivation 302
Science Applied to Farming, No. 44.—Formulas for Fertilizers—Stockbridge Manures 291
Sheep Farming for the South 300
Shepherd Dogs.....*Illustrated*..293
Slatted Floors for Cow Stables.....4 *Illustrations*..296
Strawberries—New ones of Promise...2 *Illustrations*..301
Talks on Farm Crops, No. 18.....294
Tethering Cows .....*Illustrated*..298
Village Improvement.....299
Wheat to the Acre, More.....289
Wooden Stable Fork.....*Illustrated*..298

INDEX TO "BASKET," AND OTHER SHORT ARTICLES.

Agricultural Education..287
Ashton's Salt.. 282
Asparagus, Fine.....315
Big Head.....286
Birds, A New Work on..282
Bones, Preparation of...314
Bones or S'p'rphosph'te.314
Bone-ash, black, or Bones314
Burn Heap.....303
Butter Factory.....314
Butter Coloring.....315
Carbolic Acid, Sheep Dip316
Chicken Cholera.....315
Clawson Wheat.....282
Clogging a Water-Pipe. 313
Clover Weed Seed...*Ill.*..287
Colts—To accustom them to the Halter.....314
Compost Heap.....314
Composting Animals ..315
Cotswold Sheep and Angora Goats.....315
Cow Holding Back Milk.313
Cows in Season.....315
Cow's Tails, Cutting....316
Cows, Breachiness.... 316
Crop Reports.....286
Cramps in Turkeys.....315
Drained Marsh.....316
Draining Meadows.....314
Dysentery in Pigs.....315
Excursion, Editorial....282
Farm Accounts... 315
Farm Experiments.....297
Flour, New Process.....314
Food from the Far West.282
Foreign Markets.....298
Fruit-growing in U. S...316
Fruit Trees, Potash in...316
Gas-lime, Value of.....314
Georgia Flea-trap.....315
Grafting and Budding...282
Granary Boards.....313
Gold Detecting 316
Green Corn, Preserving.287
Hedges, Pruning.....314
House Drainage.....282
Jas. Fleming, Obituary.315
Lump in a Cow's Teat...315
Mending Burst Pipes....314
Nuts and Nubbins.....316
Oleomargarine Law, Ct..315
Paris Green.....315
Pasture, to Renovate....314
Petunias—Potato-bugs..316
Plaster on Clover.....315
Plums do not Bear.....316
Pneumonia, Typhoid....314
Potato-bugs, made useful.314
Potato-diggers.....281
Potatoes above Ground..316
Poultry in Stables.....315
Poultry in United States.313
Poultry Vermin.... 315
Preserving Powders.....281
Railroads in U. S.....314
Ram's Horn, Removal of.314
Road-horse, Condition...316
Roller, Use of.....295
Roses, A Selection of....286
Roots, Feeding.....313
Roots, Rich Soil for.....293
Roots, Thinning.....289
Rustic Chair..*Illustrated*..287
Sheep, Herding.....282
Shooting, Remarkable....287
Soap Box, A Use for.....303
Strawberry, Layering....301
Strawberry Grub.....304
Trace-Chains, Protection314
Watermelon, Carrying...287
Weeds.....295
Western Immigration....289
Wheat, Experiments with282
Wheat on Poor Land....282
When to Sow Timothy..313

Calendar for the Month.

Day of Month.	Day of Week.	Boston, N'Eng land, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	T	4 52	7 20	8 44	4 56	7 16	8 45	5 1	7 11	8 45
2	F	4 53	7 19	9 8	4 57	7 15	9 10	5 2	7 10	9 12
3	S	4 54	7 18	9 34	4 58	7 14	9 38	5 3	7 9	9 41
4	S	4 55	7 16	10 4	4 59	7 12	10 8	5 4	7 8	10 13
5	M	4 57	7 15	10 38	5 0	7 11	10 44	5 4	7 7	10 51
6	T	4 58	7 14	11 21	5 1	7 10	11 28	5 5	7 6	11 35
7	W	4 59	7 13	morn	5 2	7 9	morn	5 6	7 5	morn
8	T	5 0	7 11	0 11	5 3	7 8	0 19	5 7	7 4	0 27
9	F	5 1	7 10	1 12	5 4	7 6	1 19	5 8	7 3	1 26
10	S	5 2	7 9	2 16	5 5	7 5	2 23	5 9	7 1	2 30
11	S	5 3	7 7	3 24	5 6	7 4	3 30	5 10	7 0	3 35
12	M	5 4	7 6	rises	5 7	7 2	rises	5 11	6 59	rises
13	T	5 5	7 4	7 19	5 8	7 1	7 15	5 12	6 58	7 15
14	W	5 6	7 3	7 38	5 9	7 0	7 38	5 13	6 56	7 38
15	T	5 7	7 2	7 57	5 10	6 58	7 58	5 14	6 55	7 59
16	F	5 8	7 0	8 16	5 11	6 57	8 18	5 14	6 54	8 20
17	S	5 9	6 59	8 37	5 12	6 56	8 40	5 15	6 52	8 43
18	S	5 10	6 57	9 0	5 13	6 54	9 4	5 16	6 51	9 8
19	M	5 11	6 56	9 27	5 14	6 53	9 32	5 17	6 50	9 38
20	T	5 12	6 54	10 0	5 15	6 52	10 7	5 18	6 49	10 13
21	W	5 13	6 52	10 45	5 16	6 50	10 52	5 19	6 47	10 56
22	T	5 15	6 51	11 34	5 17	6 48	11 41	5 20	6 46	11 48
23	F	5 16	6 49	morn	5 18	6 47	morn	5 21	6 44	morn
24	S	5 17	6 48	0 37	5 19	6 45	0 44	5 22	6 43	0 51
25	S	5 18	6 46	1 50	5 20	6 44	1 55	5 23	6 41	2 1
26	M	5 19	6 45	3 6	5 21	6 42	3 10	5 23	6 40	3 15
27	T	5 20	6 43	sets	5 22	6 41	sets	5 24	6 38	sets
28	W	5 21	6 41	6 45	5 23	6 39	6 45	5 25	6 37	6 44
29	T	5 22	6 40	7 10	5 24	6 38	7 11	5 26	6 35	7 13
30	F	5 23	6 38	7 36	5 25	6 36	7 39	5 27	6 34	7 42
31	S	5 24	6 36	8 5	5 26	6 34	8 9	5 28	6 32	8 13

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart	5 8 35 mo.	8 23 mo.	8 11 mo	7 59 mo.	7 29 mo.
Full M'n	12 7 32 ev.	7 20 ev.	7 8 ev.	6 56 ev.	6 26 ev.
3d Quart.	20 11 24 ev.	11 12 ev.	11 0 ev.	10 48 ev.	10 13 ev.
New M'n	28 1 15 mo.	1 3 mo.	0 51 mo	0 39 mo.	0 9 mo.

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Subscription Rates of the *American Agriculturist, postage prepaid* by the Publishers: One Copy, $1.60 a year; *Two* Copies, $3; *Three* Copies, $4.20 ($1.40 each); *Four* Copies, $5.20 ($1.30 each); *Five* to *Nine* Copies, $1.25 each; *Ten* to *Nineteen* Copies, $1.20 each; *Twenty* Copies and upwards, $1.10 each; Single Numbers, 15 cents, post-paid.—The above terms are for the United States and Territories, and British America. To the above add 14 cents extra per year for papers delivered by mail in N. Y. City, and for copies sent outside of the United States and British America, *except* to Africa, Brazil, British Honduras, the East Indies, and Mexico. For the last named five countries the extra charge is 38 cents per year, to cover extra postage; Single Numbers, 17 cents, post-paid.....**Remittances,** payable to Order of Orange Judd Company, may be sent in form of Checks or Drafts on N. Y. City Banks or Bankers; or P. O. Money Orders; or in Registered Letters, such letters to have the money enclosed in the presence of the Postmaster, and his receipt taken for it, and the postage and registering to be put on in stamps. **Money remitted in any one of the above three methods is safe against loss. Bound Volumes** from Vol. 16 to 36 inclusive, supplied at $2 each, or $2.50 if to be sent by mail. Sets of numbers sent to the office will be bound in our regular style for 75 cents (30 cents extra if to be returned by mail). Missing numbers for such volumes supplied at 12 cents each.—**Any Numbers** of the paper issued for 21 years past, sent post paid for 15 cents each; or *any* full year, sent unbound, for $1.60.....**Clubs** of Subscribers can be increased at any time, at the club rates, if new members begin at same date as original club.

Every German Cultivator and Laborer on the Farm, or in the Garden, OUGHT to have the German *American Agriculturist*, and thousands of *new* subscribers are taking it this year. It contains not only the Engravings and all the essential reading matter of the American edition, but an additional *Special German Department*, edited by the Hon. Frederick Münch, of Missouri, a skillful and successful cultivator and excellent writer. No other German Agricultural or Horticultural Journal in America has been so long issued; no other contains so much useful information and so many engravings. Germans are a *reading, thinking* people, and know how to make good use of what they read. Many Americans supply it to their German laborers and gardeners; all would find it pay to do so.—*Nothing else can compete with it in cheapness of price for the same amount of material, engravings, etc.*, because the expense of collecting and making these is largely borne by the American edition, and no separate office or machinery is required beyond German editors and the printers. Its terms are the same as the American edition, singly and in clubs; and clubs can be composed of subscribers for either edition in whole, or in part.—☞ *Please call the attention of your German neighbors* to this paper. It will do much to help new comers to a knowledge of the system and modes of culture used in this country.

TO EDITORS.—We send an Advance Copy of the next *American Agriculturist*, which will be found quite up to the average. A few items are alluded to below. The article on page 299, "*Village Improvements*," is one of great interest, not only in New England, but elsewhere, giving as it does the mode of organization, and the grand results easily obtained by this, one of the oldest Associations of the kind—the parent—the inspirer of hundreds of others all over the country.

For Visitors to the Country, from City and Village, a useful and pleasing *vade-mecum* is the *American Agriculturist* for August 1st, with its half a hundred engravings of rural objects, implements, conveniences, plants, etc., while cultivators in all departments will find much of interest and practical utility to fill up their resting hours with instructive reading. Among some two hundred articles and items are: The Work of the Month; A Farmers' Celebration of the "Fourth;" A Neat House or Parsonage, with Plans and Details; Chapter on Good Dogs; "Among the Farmers;" "Talks on Farm Crops;" Village Improvement Association; Sheep-Farming at the South; Notes from The Pines; Household Topics; A good Boys' and Girls' Department; Exposure of Humbugs, etc., etc. Orange Judd Co., New York, publishers. $1.60 a year. For sale by newsdealers generally, at 15c.

'Trouble with Specimens by Mail.—We have heretofore called attention to the trouble we have with plants, etc., sent us by mail. After exercising all care, we still have several letters referring to specimens which have not reached us, and a number of specimens of plants, insects, etc., to which we have no clue. When one has taken the pains to send a specimen by mail, it is a fair indication that he really wishes to know something about it, and we have every desire to gratify his wish; but if three or four specimens of grasses, for example, as sometimes happens, come in one day, and there is neither postmark, nor sign, to tell to whom they belong, we are quite unable to make them useful. By far the safest way is to spend specimens of moderate size in a letter; it rarely occurs that the grass or other plant is large enough to more than double the ordinary letter-postage, and we are sure of its safe arrival (which, in the other case, we are not), and of knowing from whom it comes. ... Some one in Minn., having a new raspberry, wishes our opinion of it. It is just possible, that by great care a perishable fruit like this might be sent so far by mail, and arrive in fair order, but highly improbable. Our correspondent wraps some berries in cotton, puts them in a frail paper box, ties it with a string, and sends it. We receive a crushed box, containing some matted cotton,

in which are imbedded some raspberry seeds. Not the slightest trace of a berry, except these seeds, and the *jam*. Had not the cotton fortunately absorbed the juice, the parcel would have been thrown out as injurious to other mail matter. It is not safe to send fruit, insects, or anything that can be crushed, in any other than wooden or tin boxes. We ask our friends, for their own sake, to endeavor that these specimens shall not only reach us in good order, but that they may be so marked that we can identify the owner. As it is, about half of those sent fail of their object through no fault of ours.

"The Sportsman's Library of Standard Works," is the title of a beautifully illustrated Catalogue, just issued by the Orange Judd Company. Some account is given of the various works on Hunting, Fishing, Shooting, Horses, Dogs, and also the popular works on Natural History of most interest to the sportsman. The engravings are abundant, and add much to the interest of the Catalogue, which is sent to any address for two 3-cent postage-stamps.

Cranberries.—"S. G. R.," Ilion, N. Y. The requisites are a peat bog, an abundance of pure sand, and water under such control that it may be let off or on to the plantation as may be needed. "Cranberry Culture," by J. J. White, published by the Orange Judd Co. ($1.25), gives every needed particular, and is by far the best guide that we know of.

Disease in Sheep.—"P.," Brunswick, Ga. A soft, loose swelling under the jaw in sheep is indicative of a dropsical effusion, caused by disease of the lungs or liver. It accompanies pleurisy and pneumonia, and is known as "liver rot." Alone, it is not sufficient to indicate fully the condition of the sheep, and no treatment can be suggested without further information. For full directions for determining the nature of the disease, and proper treatment, consult *Stewart's Shepherd's Manual*.

American Berkshire Record.—Pedigree goes for something either good or bad; and a record that shows a valued ancestry is a considerable item in the salable estimate of either a horse, a bull, a cow, or a pig. This fact has tended to the successful establishment of the Berkshire Swine Record, of which the third volume is now in course of preparation. Entries for this volume can be sent to P. M. Springer, Springfield, Ill., Secretary of the American Berkshire Association.

"Food from the Far West."—We do not know just where the "Far West" is, but an intelligent Scotchman, James Macdonald, has found it in Texas, Nebraska, Kansas, Iowa, and the neighboring States, and gives in a work with the above title the results of his observations during a protracted tour in our cattle-raising States. It is sometimes an advantage to have portions of our own country described by a stranger, as many points which an American regards as matters of course, strike him as novel and of interest, and if the writer from abroad be a good observer, he is likely to give us a fuller account than would an American describing the same territory. In the present book we find the whole subject of cattle, sheep, and hog raising in the Western States discussed in detail, and by a disinterested observer. It is a work that can not fail to be of value to those who contemplate entering into this branch of agriculture, and to those who are engaged in the exportation of meat to other countries. Those who are interested in the development of this branch of industry, as related to our national prosperity, will find here a vast fund of information upon food supply—a subject of interest both at home and abroad. Published in London, Eng. For sale by the Orange Judd Co.; price, $1.50.

"House Drainage and Water Service in Cities, Villages, and Rural Neighborhoods," by James C. Bayles, New York: David Williams. This is a large octavo of 360 pages, with numerous wood-cuts and working drawings. A work of this importance requires more careful study than this mid-summer weather will allow, and we can only at present say that we are most favorably impressed with its apparent thoroughness and completeness. It, while giving full plans for supplying water to and carrying off the wastes of costly city-houses, does not omit the wants of the humblest farm-house, but it gives the simple earth-closet—without machinery, which we have on several occasions presented to the readers of the *American Agriculturist*. A copious index and marginal references add greatly to the value of the work. Sent from this office, post-paid, for the publisher's price, $3.

Grafting and Budding.—Several years ago, we had occasion to notice "*L'Art de Greffer*," by Chas. Baltet, who kindly, through a mutual friend, sent us a copy of the work in the original French. Since then it has been translated into English, and published by MacMillan & Co., London, Eng. It is the most complete work on grafting—including budding—in any language, and though the American propagator may not need to use many of the processes here described, it is well for him to know about them. We know of no other work that is so full on this method of propagation in all its varieties. It can be sent from this office post-paid for its price, $1.75.

"How We Raised the Baby," is the title of a handsomely gotten up work by Derby Brothers, New York, written by "A Benedict," with a preface by the author of "Helen's Babies." It is well written in a pleasing style, and, so far as we have examined it, is a work which young mothers will welcome, giving both instruction and pleasure. Price, paper, 50c.; cloth, $1.00.

Book for Shepherds.—"A. J. K." Springfield, Ill. Randall's Practical Shepherd is a very good book, but is not modern. Randall's Sheep Husbandry relates chiefly to the Southern States. A modern book, which includes all that is valuable in other works, and contains much new matter that is found in no other, is Stewart's Shepherd's Manual. This describes all the newer breeds, and even the cross-bred sheep, that are now coming into notoriety.

Poultry Journal.—"R. G.," Allegheny Co., Pa. The *American Agriculturist* contains every month much information regarding the breeds and management of poultry. Those, however, who desire a journal entirely devoted to poultry, will find an excellent one in the "Poultry World," Hartford, Conn.

A New Work on Birds, by the rising naturalist, C. J. Maynard, of Newtonville, Mass., is now being issued by the author. It is called "The Birds of Florida, with the Water and Game Birds of Eastern North America," and, with its appendix, is intended to describe all the birds occurring between the Mississippi and Atlantic Ocean. We say a "new work," though it is a new and revised edition, with many additions and improvements, of a work previously issued. With its additions it is practically new. Though it might have been somewhat condensed, it is a work full of interest to the lover and student of birds. The 16 plates, hand colored, are of new or little known species, and are handsome and life-like. The work has the charm of originality, being mostly from the author's own notes, gathered during 15 years of study and observation. It is issued in monthly parts, 16 in all; five are now out. Price, 85 cts. a number.

Harrison's New Standard Flouring Mill has, we understand, been recently improved by doubling the discharge spout, by the addition of a safety spring, which prevents damage from the passage of stones, nails, etc., and the substitution of a steel spindle in place of an iron one. Thus fitted out, these mills are doubtless equal to many years of grinding, as they are honestly made in other respects.

Clawson Wheat.—Our contributor, Joseph Harris, who Talks about Crops on Moreton Farm, sends us specimens of heads from his crop of Clawson wheat. Being several years ago convinced of the value of this variety as a white winter wheat, he has taken pains to keep it pure and to introduce it to the attention of other wheat growers. The specimens, in both head and grain, warrant Mr. H's. high opinion of it. He offers it to those who wish to test it on very moderate terms.

Wheat on Poor Land.—"J. H. T.," Portage Co., Ohio. For a very poor soil, either of the special wheat manures made by Bowker & Co., or the Mapes Formula Co., could be used with the probability of success. It should be sown on harrowed ground, and harrowed in, after which the seed is to be sown. A very popular wheat is the Clawson. Fall wheat should be sown about the middle of September, or later where the fly is feared. Clover may be sown until early in the spring, or about the first of August, which some prefer as the best time.

Experiments with Wheat.—Last spring the *American Agriculturist* inaugurated some important farm experiments with fertilizers, which created a great interest, and are being carried out by a large number of farmers in various sections of the country, and with quite satisfactory results thus far. We are pleased to learn that this good work is to be continued by at least one prominent fertilizer house. The Mapes Fertilizer Company have arranged a "Complete Manure" set, on a simple and easily understood plan, which they offer to send to farmers at a merely nominal cost, as compared with the work and expense involved, especially for trial this fall on wheat, rye, and grass. There are four bags in the set, of a uniform size of 50 lbs. each, to be used on uniform sized plots. No. 1 is a complete fertilizer, containing nitrogen, phosphoric acid, and potash; Nos. 2, 3, and 4, are the same as No. 1, save that the nitrogen is left out in one, phosphoric acid in another, and potash in the last, thus covering the ground in a simple manner. These experiments, while they may not tell just what and how much any particular soil lacks, and must be continued perhaps for years in order to reach any definite results, are instructive and valuable for any farmer to try, as they familiarize him with the substances employed, and teach many principles in the use of artificial fertilizers, which are fast becoming a necessity in American agriculture.

Reliable Business Men, those who have both the *ability* and the *intention* to do what they promise, are the only ones invited to use the business-pages of this journal, and those in charge of that department are under positive instructions to admit no others at any price, and they try to live up to it, and generally do, though once in a while they may make a mistake—to err is human—but *this* seldom occurs. We could make a fortune in a single year, and supply the paper at lower rates, if the advertising pages were thrown open to those who gladly pay high prices, as they can afford to, because they give little for much. But we mean our advertising pages shall be a valuable source of *trustworthy* information to our readers.—When ordering from, or corresponding with any of our advertisers, or sending for catalogues, etc., it is well to state that you are a reader of this Journal. They will know what we expect, and what you expect of them as to prompt and fair treatment.

Ashton's Factory-Filled Salt.—There are certain products which have a world-wide reputation; this has been established by observing through a long series of years a uniformly high standard of excellence. Among the various brands of Salt in the market, none has, to say the least, a better reputation among dairymen than the Ashton, and this has been acquired by preserving a high quality as to purity—and, what is of equal importance, a uniform texture as to grain. But our present object is not to extol the quality of the Ashton salt—a task as useless as to praise Day & Martin's Blacking, or Crosse & Blackwell's Worcestershire Sauce—articles to be found in every port in the world. The reputation of this salt was made many years ago, and its excellence has been frequently alluded to in these columns. The object of the present notice is to call the attention of those who have found the sacks of 250 lbs., in which this salt could heretofore only be obtained, inconveniently large, to the fact that it is now put up in small bags of 56 lbs. each, and the small dairyman can now purchase the salt in quantities suited to his needs, and of a quality guaranteed to be equal to that in the larger sacks.

An Interesting Excursion.—Our readers can not spend their leisure more pleasantly than in visiting regions whose magnificent imposing scenery enlarges one's ideas, lifts him, so to speak, out of himself, and carries him nearer to the Creator, through a contemplation of His wonderful works. Excursions are now arranged by the various public thoroughfares at so reasonable rates, that the farmers, after the labors of the harvest are ended, and at other periods, when work does not press, can take their families on jaunts of a few days for a comparatively small outlay. There is no locality in the Middle States which presents more magnificent natural scenery, more objects of interest and instruction, than what is known as the Lehigh mining region of Pennsylvania, extending from Bethlehem through the Lehigh Valley to Wilkesbarre. Two of our associates have this week returned from a visit thither. One of them, after travelling eight thousand miles through the Rocky Mountains and the far Western States and Territories, says that he nowhere found more imposing and romantic scenery, than he has now met with during his last week's jaunt in the Lehigh Valley. There are numerous railroad routes which convey visitors to this region, whether coming from the East or West. Two entire days should be spent at Manch Chunk, where the Coal Mines, the "Switch Back" Railroad, Mt. Pisgah, Mt. Jefferson, Panther Creek Gorge, Onoko Glen, with its innumerable cascades and waterfalls, and many other points of attraction, afford a succession of gratifying surprises for the tourist.

The Interesting Market Tables, 1 to 5, on page 285, are, as usual, instructive—especially Table 3. The exports of Wheat since Jan. 1, have been nearly *six times* greater than last year, or 23,216,000 bushels against 4,640,064. Taking the flour as wheat, (5 bushels to the barrel), the excess this year is 22,443,881 bushels, or an excess of two million bushels over the greatest entire export for any season during six years previous. Many other figures in the several tables will repay careful study and comparison.

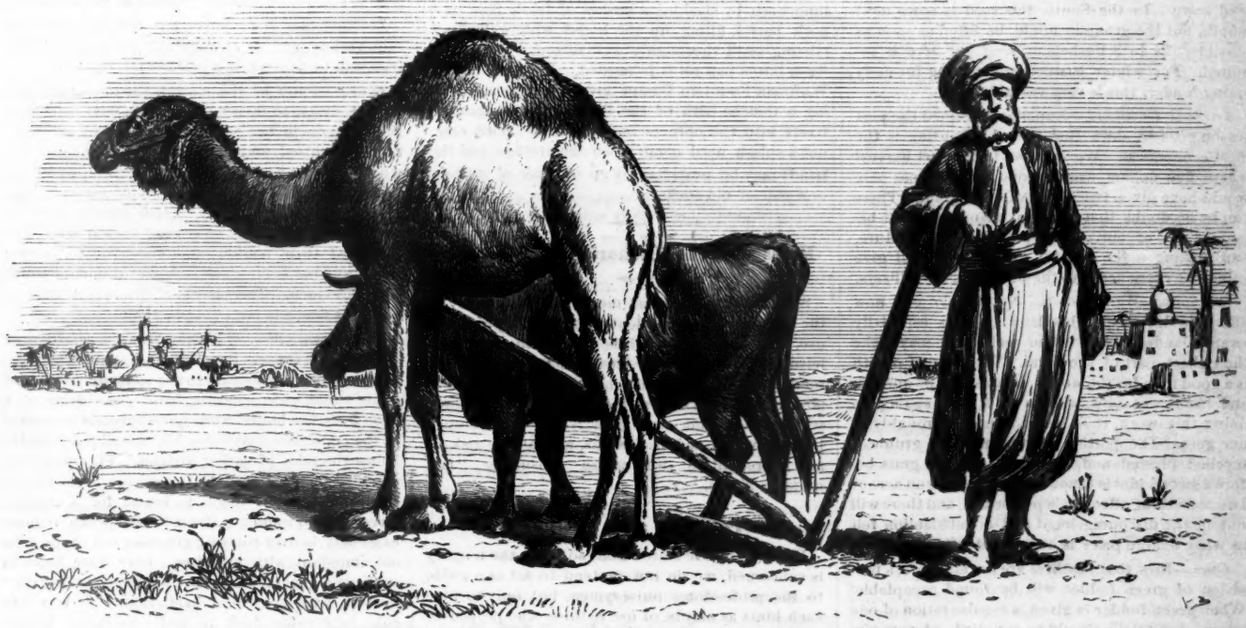
Herding Sheep.—"K.," Half Day, Ill. One man can herd 2,000 sheep upon the plains with the help of a boy and two dogs. To herd 1,000 will require as much help. There is no better grain than corn for yield, ease of growing, and for use in feeding sheep. One ear per sheep each day, or one pint of shelled grain, is sufficient, with fair pasturage.

AMERICAN AGRICULTURIST.

New York, August, 1878.

Agriculture of the Nile.

The plow-team in the picture tells the story of Nile farming in a simple, straightforward manner. In the strangely inharmonious outlines of the camel and the ox, one can trace the geography of the country thereabout: The desert has come to the Nile for drink, and to its harvest fields for food. The desert is but close at hand, just back of the bordering lands which feel the hand of the Nile-god in the moisture of the air, and receive his mantle of over-flowing waters. The incongruity of the mating indicates the half-civilized condition of the people, the mass of whom are living as their fathers lived centuries ago, who harness the camel and ox, use the same plow, plow just as deep, sow the same seed, cultivate the same crops in the same manner, are guided by the rise and fall of the Nile waters, and look upon the Nile-god as a deity rul-



A SCENE ON THE NILE.—From a Sketch by Hoppin.

ing all their affairs, just as their fathers, and fathers' fathers, for many generations, did before them. The plow of the sketch would do very poor service in the hard soils of New England; on the prairies of the West it might do better. But it is made for a different condition of the agricultural soil. You see its story printed in plain characters on its rude mould-board, and share, and sole, which run together as one? It is as plain as the written language of the American Indian. It reads thus:

"There is no rain in this country; the Nile is fed by waters from the lakes and mountain streams of the far interior. The Nile-god knows that without rain his people can only water their crops by the severest of hard labor in irrigation. So once every year he calls upon the lakes and streams to fill the banks full to overflowing, and spreads out his mantle of water over the fields. As the waters subside, several inches of fine silt, brought from fertile woodlands at the source of the river, is left on the surface. This accumulation has gone on for centuries, so that it now composes the whole soil, which is so fine, light, and soft, that only this crooked stick is needed as a plow to stir it."

Thus the Nile-god cares for his people: he waters their lands, fertilizes the earth, gives them a soil so light and easy to work that only the simplest and least costly of implements are required. They can live in ease, and revere and follow the customs of their fathers; for the Nile-god is the same yesterday, to-day, and—to-morrow will take care of itself. Such is the story of the plow. No need, then, you see, of an "Adamant," a "Patent Chilled Oliver," a "Centennial," or a "Holbrook." It does its work. "Let well enough alone," is the motto of that people. The turbaned plowman corroborates the tale of the team and of the plow But he tells more: his clothing speaks of another race of fierce, hardy people, who, ages ago, came from the East and overran this land, bringing destruction to everything save the pyramids, the sphinx, the Nile, and the desert.

Hints for Work.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

An Explanation.—When we consider the vast territory over which the *American Agriculturist* circulates, and the great difference in the seasons, it is obvious that these hints cannot be used by all readers alike. They must necessarily be general in character, and when it is not expressly stated that the remarks apply to a certain section, discretion must be used as to the time and manner of acting upon the hints given. For example, in regard to sowing, planting, harvesting, and such other work, it is evident that no one rule can apply everywhere; but it is easy for each reader to adapt the suggestion to his own locality.

Preparation for Wheat.—Harvest being over, the soil for the next crop needs to be prepared at once. In the Southern States, where sowing may be delayed for two months yet, a "pea-fallow" is an excellent preparation. Land may be plowed and harrowed and two bushels per acre of cow-peas sown. The seed is best covered with a five-tooth cultivator. The growth made when the time for wheat seeding arrives, is to be turned under carefully, and the ground leveled by drawing an inverted harrow over the field, which also helps to cover the vines. If cotton seed is used as a fertilizer, sow it upon the vines, before plowing under. In the north,

A Clover-sod, may be treated to a dressing of well rotted manure, and plowed late this month. Perhaps there can be no better method for wheat than this.

Wheat after Oats, is a faulty practice. The soil is filled with weeds—of which the sprouting oats are the worst—and the rag-weed, and many others work mischief. An important needed improvement in agriculture is

A Change of Rotation.—With the present rapidly changing demands upon farmers for a greater variety of food products, we need a changed system of agriculture. The production of meat will have to be the chief aim of a large number. There is a widening demand for milk and cheese, and for the best grades of mutton sheep. All these are products of the highest systems of farming, in which the soil must be enriched and kept clear of weeds, so as to produce maximum crops of fodder that can be manufactured *on the farm* into these most salable articles. The old plan of rotation—grass and clover, corn, oats, and wheat—in which the three grain crops following each other, are not well adapted to cattle feeding, especially the last two—must be abandoned if we are to derive any advantage from the new demands and markets so auspiciously opening for us in Europe.

Drilling Wheat.—It would be an interesting and we believe a profitable experiment to sow at least one acre of wheat in drills, so far apart, that the crop could be cultivated. This may be done by tying each two of the drill spouts together, and thus discharging the seed into one furrow; sowing somewhat less seed. Then the rows will be 12, 14, or 16 inches apart; and the spaces may be cultivated by adapting an ordinary spreading cultivator, or using a wheat hoe, such as has been often described in the *American Agriculturist*. A yield of 60 to 80 bushels per acre, has been obtained in this manner.

Seed.—As much depends on the variety of wheat sown as upon the manner or cultivation. Upon similar soil, and with the same treatment, one variety may yield twice as much as another. Of several new varieties tried by the writer the present season, the Clawson has excelled.

Early Sowing is preferable, except where there is danger of the Hessian fly; in which case sowing may be deferred until late next month; but of the two evils—the fly or late sowing—it is questionable which is the worse. Many good farmers believe liberal fertilizing, and the consequent vigorous growth, to be the best remedy against the pest. This, however, is a matter in which local circumstances must be well considered.

Rye.—The remarks relating to wheat apply equally to rye. Where the straw is salable, this is often a more valuable crop than wheat.

Fodder.—For fall fodder, white turnips may be sown this month. An oat stubble plowed and

fertilized, may easily produce 600 or 800 bushels per acre, well worth 10 cents a bushel for cows, sheep, or pigs, and which will keep until January in good condition. 300 lbs. per acre of artificial turnip manure, or superphosphate, will aid greatly.

Southern Fodder Crops.—In the South, fodder crops may be consumed upon the ground, and the labor of harvesting saved. Turnips may be thus used for sheep, cattle, or pigs. For fall pasture, hay, rye, wheat, oats, barley, or millet, may be sown late this month; but as a drouth may render the ground too hard for plowing, this work should be done at the earliest convenience.

Plowing.—No time should be lost in plowing the land intended for fall crops. A double benefit will accrue in avoiding the risk of a drouth-hardened soil, and at no other time can weeds be so easily killed as now. One or two workings with a cultivator, or harrowing before weeds go to seed, will effect a good fall-fallowing and add fertility to the soil.

Green Fodder not required for feeding should be cut and cured for winter use before ripening. A well-worked crop of fodder-corn may very well be followed by fall grain or turnips. No piece of arable ground should be left idle.

Winter Oats are a valuable crop for the South, and as far north as Virginia, but a trial last season convinced the writer that this is not a crop for the North. Not one plant survived from a bushel of seed sown. In the South, the seed is sown next month, but the ground should be fitted as soon as possible. 2½ to 3 bushels of seed per acre is required. For winter pasture, and cutting for early spring fodder, this is very valuable.

Artificial Fertilizers.—Experience gained the past season goes to show that liberal manuring is the most economical. We can see in the past harvest where five dollars worth more fertilizer per acre would have given twice that value of grain. There can be no doubt that artificial manuring must become a part of our settled practice in the future, and making a few careful experiments will give valuable experience as to the use of these fertilizers.

Reclaiming Waste Lands.—No farmer can now afford to let any of his land lie idle, especially swamp lands, which, when reclaimed, may make the richest part of the farm. The present month is a good time for the work. Drains may be opened, and brush cut now will rarely sprout again. In doing this work, it is best to clear thoroughly as one goes. The portion begun should be grubbed, levelled, plowed, and, if desired, sown to grass before a second plot is touched. By finishing an acre or two, something effective is performed, and there will not be the discouragement and dissatisfaction felt as when a large piece is begun and left unfinished.

Cows.—Now that pastures are dry and bare, a provision of green fodder will be found acceptable. When green fodder is given, a regular ration of one ounce of salt daily should be supplied. A cow giving 10 to 12 quarts of milk per day, will consume 80 pounds of green fodder with 4 quarts of grain, every 24 hours. Where green fodder is provided, it may be well to keep the cows in a dark stable during the heat of the day. The past month the writer has found a considerable difference in the yield of milk in favor of this mid-day shade and rest.

Horses.—A run in a pasture field at night will be very acceptable to the working horses. In close stables the flies greatly disturb them, which they escape in the field. After a day's work, to sponge the coat with clean water, having a dash of carbolic soap in it, will be refreshing and healthful, and will prevent much of the annoyance from flies. Cleanliness will almost entirely avoid the disagreeable horse smell so prevalent in warm weather. The night's pasture should not be counted as part of the feed; the usual feed should be given before they are turned out in the evening.

Galls of the Skin.—Where the skin is chafed or galled by the harness, it should be washed with salt water, and, when dry, painted with spirits of turpentine. This will heal the raw spot, and keep off the flies. To prevent galls, scrape and wipe off with a wet cloth the harness where it presses closely upon the skin. Pads are to be avoided. A collar or other part that will admit of a pad under it, fits badly, and is almost certain to produce galls.

Colts may now get a few oats daily as the grass fails. A shelter should be provided in the pasture where they can find shade; it should be in an airy part of the field, free from flies.

Sheep.—Ewes that are separated from the lambs should be closely watched, and the milk drawn from those whose udders are full. Where early lambs are wanted, the ewes should now be well fed; a pint of mixed rye, buckwheat and linseed meal may be given, and the ram introduced into the pen at night. For early lambs, the Southdown cross is preferable for quality, and the Cotswold for size. The flock will need the closest watchfulness just now; the gad-fly, dysentery, and the maggot are troublesome and dangerous enemies at this season. Count the flock every evening, and look up the stragglers without loss of time.

Pigs and Poultry, are omnivorous animals, and their tastes should be consulted. When in confinement, some fresh green food is needed, and a few chopped cabbages, or corn fodder will be greatly relished. Cleanliness in the pens will prevent disease, and keep vermin away. To keep places of this kind clean is much less trouble and labor than to make them clean when they have been neglected. Plenty of whitewash inside will cleanse and sweeten.

How to Apply Whitewash.—Make a barrel full of lime-wash by slacking a bushel of fresh lime in a pork barrel, filling up the barrel with water, and stirring until thoroughly well mixed. Strain the wash into a pail as it is needed. With one of the Whitman Fountain Pumps give the walls and ceiling a douche bath of the lime wash, pumping it freely into the corners and crevices. With care, not a splash need come upon the clothes, and the hands may be protected by an old pair of mittens or a pair of old socks.

Notes for the Orchard and Garden.

Sufficient was said last month on the holiday of the orchardist and gardener, and on its profitable use. With many this will be the month of greatest leisure, and it will, we trust, be to many one of recreation; others having had their holiday, have already begun to look at the fall work. Of course, with such a wide circle, our Notes must always look forwards and backwards, and at the risk of much repetition we advise consulting "last month's Notes."

Orchard and Nursery.

We have before stated that, so far as the nursery is concerned, we do not pretend to act as a guide to the professional nurserymen, but only to give such hints as may be of use to those who propagate trees for their own or their neighbors' planting. We would especially call the attention of

Farmers' Boys to the fact that there is nothing in the whole routine of raising ordinary fruit-trees that is beyond their skill, and that there is a chance of adding essentially to their income, if they will supply such trees as their neighbors are likely to want. We can not, in these Notes, go into every

Nursery Detail, but the whole story is so plainly told by one of our most successful nurserymen, Mr. P. Barry, in his "Fruit Garden," that with this as a guide, we do not see how it is possible for any one of fair intelligence to go astray. It is worth while for young men, in localities where trees are likely to be in demand for some years to come, as they will be generally, to think of this matter.

There is no Mystery about any of the operations of grafting and budding. Any boy who can make a willow whistle, can successfully perform these operations. It only needs a trial to show how easy both are. In a nursery the first need is

The Stocks, and these are for the most part raised from seed. Therefore, begin and collect peach-stones, etc. It is a notion among some peach-growers that only the seeds of the "native" or unbudded peach should be used for stocks. On the other hand, excellent authorities claim that the seed of any *healthy peach* is as good as that of the "Indian" peach, and we really do not see why it should not be so. The peach-growers of Europe have no wild trees to supply them with stocks, and we hear no complaint on this account.

Apple and Pear Stocks are raised from miscellaneous seed, that of the pear being usually imported, while apple seeds are obtained from the pomace of the cider mills. When the operations are small, and most beginners will make their first attempts with hundreds instead of thousands, it is easy to get seed for stocks from the fruit eaten or otherwise disposed of in the family. Have boxes, pots, or other vessels of sand, put in convenient places, and let every member of the family who eats an apple or a pear, remove the seeds from the core, and cover them with the sand; let the same be done with fruit to be used for cooking. In this manner the beginner can procure all the apple and pear seeds he will need to plant for stocks next spring.

Gathering Fruit.—Sufficient was said last month on the summer varieties of apples. With early pears, special care is often needed, as most of these, if allowed to remain too long upon the tree, will decay at the core. Just so soon as a pear is mature, which may be known by the readiness with which the stem parts from the tree, even if still quite hard, the fruit should be picked and marketed, or if to be consumed at home, ripened in the house.

In Marketing Pears, study the characteristics of each variety, and so arrange the picking that the fruit will be firm when it reaches the market.

Peaches should be the harder, the longer the distance they are to travel. Even for a near market, a single peach in the proper condition to eat, may become bruised, and spoil the appearance of the whole crate or basket. The peck basket, which we illustrated a few years ago, has now become common in city markets, but is still mainly used by dealers for repacking. Growers should study the wants of their market, and endeavor to supply them, and not leave these and the attendant profit to middle men. The success of growers of fruit of all kinds depends largely upon their

Commission Men.—Do not change consignees without due cause. Recollect that there is scarcely any business in which there are so many chances of going wrong as in handling fruit. The delay of a train for a few hours, while quite beyond the control of the consignee, may cause him to sell the fruit far below the rates of earlier arrivals. Fix upon your commission men early in the season, and stick to them until good reason is found for a change. Every fruit-producing district, the peach regions especially, is over-run with glib-tongued chaps, who are abundant with promises. Give little heed to such; as a general thing they are mere "sidewalk" dealers, with no "local habitation." It is a safe rule to consign fruit to well-established houses only. There are men who have been in the business for years, and who have worked hard to build up a reputation for fair dealing. Each city has such, and it will be well to find them out.

Young Trees will often suffer more severely this month than in any other, from dry weather, and even now, it may be necessary to apply a mulch—anything: straw, grass, chips, stones—whatever will cover the surface and prevent evaporation, to save them. On these young trees

Control the New Growth.—If shoots start where they are not wanted, rub them off. If some limbs are far ahead of others, check the rampant growers by pinching off their ends. The growth may be thus controlled, and future pruning avoided.

Insects are, as in other months, to be expected, and must be kept in control. The "Late," or "Fall-Web-Worm" will continue to weave its nets, and the shortest way is to cut off twigs and put them under-foot. Late broods of plant-lice may be destroyed by strong tobacco-water.

Budding is in season this month, according to the locality. In the Northern States, cherries, plums, and pears on their own stocks will be continued, or finished, while later in the month will be the usual time for budding peaches and pears on quince.

Fruit Garden.

The early crops being off, the plants must be treated with reference to next year's bearing.

Strawberries.—Growers differ as to the advisability of fall or spring planting. A new strawberry plant needs a full season's growth to become strong enough to bear a full crop. If the early runners remain where they take root, they will bear a crop next spring. If they are rooted in pots, and transferred to another bed, without any disturbance of the roots, they will bear well next year. This method, described more in full on p. 301, while very useful in private gardens, is not to be thought of by those who plant acres. If ordinary plants be set next spring, they will grow all the season, and give a crop the year following. If set this fall, they will make some growth, give a few berries next spring, but not a full crop until the next year.

Growers of Plants advise spring planting, and with good reason, their propagating beds keep pushing out runners, which take root and form new plants until cold weather checks them. If planting is done in the fall, it should be done early—not later than September; and to furnish plants at this time the nurseryman is obliged to waste many runners, which if left alone for a few weeks would make good plants for his spring sales.

In Fall Planting, the ground is in such excellent condition, and other work is not so pressing as in spring, that those who raise their own plants, will find it advantageous to set at this season. If the plants are at hand, they can be set early in September, after very hot weather is over; at this time the outer leaves of the plants should be removed, leaving only the central bud; if the season is favorable for a late growth, the chances are that a fair crop may be gathered next spring.

Blackberries and Raspberries.—The new growth to bear next year having been selected, all other shoots are to be destroyed. Pinching the growing end, when the canes are tall enough, as advised last month, will cause side shoots to grow, and these, when 12 or 18 inches long, according to the kind, are to have their growth stopped by pinching. Proper attention at this season will result in well-branched stocky plants, with abundant fruit next year. Black-caps and those red varieties that do not form suckers, are to have their new shoots required for next year's fruiting, similarly pinched, and all others, that will make the bush too dense, are to be removed.

Grape Vines need watching for the first appearance of mildew. Some varieties, especially those hybrids containing a cross of the European vine, are usually more susceptible to mildew than the natives. When the leaves of any vine in the collection, show grayish white spots on the underside, or the stems to the clusters show a mouldy appearance, apply sulphur to the whole, as it acts as a preventive, as well as a cure. The dealers furnish bellows for the purpose, which allow the under-side of the leaves to be reached. Apply on a still day, and diffuse a slight but uniform dusting over the whole vine. If laterals continue to push, pinch back as heretofore directed.

Dwarf Pears and such other large fruits as may be in the fruit garden, are to be treated as directed under "Orchard."

Insects, are still to be fought; the fall web-worm is not particular as to its choice, and spreads its net here and there. The large beetles and caterpillars upon the grape are to be hand-picked.

Kitchen and Market Garden.

This is a month of abundant returns from the garden, but it is also one of a rich harvest of weeds. The hot days are favorable to the destruction of weeds, and all work with the horse or hand implements tells most satisfactorily. Weed-killing—always in order—and the setting and sowing of a few late and succession crops are about all that will occupy the gardener, who will find in this of all working months his nearest approach to leisure. Many of last month's Notes apply to this.

Seed Sowing for the later crops will begin this month. Spinach may be sown for an early fall-crop, but that to be cut later, or to be wintered over, should not go in until next month. Rutabagas, if not put in last month, should be sown at once; but the quicker-maturing sorts like Yellow-Stone and Aberdeen will be more sure now, and in the latitude of New York, are sown during the last of the month; the "Cow-horn" and "Strap-leaf" will do if sown early next month.

Beans and Peas.—If beans are wanted for pickling or salting, sow Early Valentine. Refugee is the variety usually advised for a late crop, but is not so good as the other for preserving or for table use. Late crops of peas will sometimes succeed. The Early Dwarf sorts, like "Little Gem," may be tried.

Onions are usually ready to harvest at the end of this, or the first of next month; when a majority of the tops fall over, growth has ceased, and the onions may be pulled. Many growers prefer to sell at once. If they are to be stored the onions should be left on the bed, throwing three or four rows into one, until well cured.

Onion Sets, as soon as growth ceases, are to be pulled, allowed to dry, and stored in a cool, airy place in thin layers, to prevent heating.

Celery.—Late plantings may still be made, and in ordinary seasons will form good-sized roots. That already out needs to have the cultivator run between the rows, occasionally, and such weeds as appear in the rows removed by hand or a "lance-headed hoe."

Root Crops of all kinds should be worked until the growth of leaves prevents it.

Sweet Corn in the garden, with a little care, may be made to aid the dairy. So soon as the ears are off, the stalks may be cut to feed green, or they may be cured for later use. Reject and burn all stalks that are "smutty."

Sweet Potatoes are to be kept clear of weeds until the vines cover the ground; lift or move them occasionally to keep the vines from taking root.

Squashes, on the other hand, should be allowed to take root. (See last month on insects, etc.)

Melons may be made to ripen evenly, by turning, as they approach maturity, and it is well to place a wisp of hay or a shingle under them to keep them from the ground. When a melon is ripe the stem readily parts from the fruit.

Watermelons are known to be ripe by the sound they give when struck by the finger. A sound cannot be readily described, but a little practice soon makes it familiar.

Insects will be abundant and must not be neglected. As soon as turnips are up "the flea" will find them. Sprinkle air-slaked lime or ashes along the rows. Watch the tomatoes for the "worm," which can usually be traced by its droppings.

Flower Garden and Lawn.

The work here will be mainly that of keeping things in order. See last month's Notes on mowing lawns, and let the operation be governed by the condition of the grass and the weather....Stake Dahlias, Tuberoses, Gladioluses, Lilies, and such other plants as need this support....Insects are often troublesome; the abundant lice on Chrysanthemums may be treated to strong tobacco water. The caterpillars which disfigure lilies are to be hand-picked....Cut away flower clusters when faded, and remove all spent annuals....Bedding plants in lines or figures will need pinching to keep them at proper hight, or to prevent the lines from becoming indistinct by plants growing together.... If it is desirable to make cuttings of any bedding plants, do it while they are still vigorous.

Greenhouse and Window Plants.

The needed directions for these were given in last month's Notes....Whatever repairs are needed about the greenhouses or frames, should be done long before cool weather comes....Propagation of many plants may go on in a shaded house. Most roses will grow from cuttings of shoots that have well-formed buds in the axils of their leaves, and cuttings should be taken of such bedding plants as it is desirable to keep a stock of during winter, and of such plants as have been turned out into the borders, and will be too large to take up in the fall....See that pots set out of doors are not exposed to full sun, as this will greatly injure the roots, and is often an unsuspected cause of bad health.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions *for the month ending July 13th*, 1878, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	382,000	4,907,000	3,962,000	490,000	261,000	1,197,000
26 d's *last* m'th	341,000	4,812,000	3,617,000	646,000	307,000	811,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 d's *this* m'th	476,000	6,518,000	5,151,000	570,000	98,000	1,956,000
26 d's *last* m'th	413,000	5,409,000	4,815,000	741,000	229,000	1,978,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1878..	382,000	4,907,000	3,962,000	490,000	261,000	1,197,000
25 days 1877..	267,500	2,541,000	3,104,000	79,000	197,000	1,281,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1878..	476,000	6,518,000	5,151,000	570,000	98,000	1,956,000
25 days 1877..	354,000	2,605,000	4,216,000	119,000	223,000	1,209,000

3. *Exports from New York, Jan. 1, to July 11.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'78.	1,387,000	23,216,000	13,304,000	2,541,000	1,653,000	891,000	299,000
'77.	613,411	4,640,064	10,108,374	747,505	513,151	92,515	150,283
'76.	1,043,423	15,760,390	8,398,861	544,823	8,078	272,584	410,920
'75.	923,239	10,638,507	6,008,198	105,687	165	61,840	218,160
'74.	1,132,136	20,601,800	10,183,009	513,622	240	32,603	252,765
'73.	638,482	6,377,645	6,531,315	190,670	19,226	17,578	53,030
a'72.	418,080	4,202,506	11,967,765	366,829	22,656	17,215	115,060

4. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
July 11, '78..	1,201,132	720,784	138,852	174,000	207,769	663,075
June 10, '78..	1,487,700	616,623	148,889	197,567	603,153	228,285
May 7, 1878..	748,196	263,020	75,229	207,576	570,298	258,377
Apr. 15, 1878..	1,370,081	541,648	106,375	396,861	857,273	253,424
Mar. 11, 1878..	1,639,371	420,434	114,260	660,145	1,090,897	275,703
Feb. 11, 1878..	1,674,035	774,470	208,816	831,673	1,415,633	318,079
Jan. 10, 1878..	2,586,715	105,900	286,333	913,898	1,687,985	321,474
Dec. 10, 1877..	2,844,982	1,724,229	399,077	864,787	1,879,053	356,642
Nov. 5, 1877..	994,374	2,643,502	166,949	968,429	1,770,759	328,396
May 7, 1877..	761,686	468,809	193,046	174,375	347,881	291,494
Feb. 7, 1877..	3,083,819	2,302,261	374,142	671,114	956,114	388,605
Jan. 8, 1877..	3,668,010	3,077,504	841,750	905,615	1,088,104	425,406
Dec. 11, 1876..	3,110,263	3,385,554	218,841	873,310	1,182,322	512,041
Apr. 10, 1876..	3,393,074	232,140	68,429	200,381	706,282	436,943
Jan. 10, 1876..	5,902,293	663,982	100,741	325,191	1,060,200	307,438

5. *Tide-water Receipts at Albany, from opening of navigation to July 1st:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
'78..	2,400	8,001,800	7,169,700	626,500	231,500	1,603,300	110,600
'77..	2,300	1,361,800	4,111,100	133,100	316,700	728,200	175,800
'76..	10,100	5,594,100	887,100	243,500	91,000	1,129,700	231,000
'75..	17,200	4,295,800	1,214,200	54,400	——	782,200	428,308
'74..	17,900	8,618,000	4,190,000	174,190	74,100	996,200	——
'73..	52,100	3,556,100	3,518,100	293,100	12,200	810,400	——
'72..	33,200	1,632,800	6,516,600	263,100	451,300	1,561,200	——
'71..	38,700	4,328,300	4,258,000	46,200	40,100	999,600	——

Gold has been up to 101, and down to 100¼, closing July 13, at 100¼, as against 100⅞ on June 13; 100⅛ on May 13; 100¼ on April 17th; 102½ on Jan. 12; 103 on Dec. 12; 102⅝ on November 12; 103 on October 12; and 105¾ on July 12 of last year....Foreign advices, as to Breadstuffs, have been more or less variable and conflicting in tenor, but toward the close deemed favorable to the export interest, while domestic crop and weather reports have been, on the whole, encouraging; though, in instances, less so than about the date of our last review. Receipts of Breadstuffs at the seaboard have been on a restricted scale, checked to a considerable extent by speculative influences in operation at the West. This circumstance has been against a free export movement. Nevertheless, business in Flour and Grain has been quite extensive. In Flour, mainly for home trade; in Wheat, Corn, and Rye, largely for shipment; and in Oats, chiefly for local use and on speculative account, though to a respectable aggregate for the French market. Prices of Breadstuffs have fluctuated frequently, and in several cases, widely—Wheat showing a further marked decline, but leaving off more firmly. The transactions in Corn at the extreme close were on a very liberal scale, on Friday, 12th July, exceeding 1,350,000 bushels, of which over 1,000,000 bushels were for future delivery. New Wheat, and new crop Wheat Flour, have been arriving more freely, and have been selling on arrival at generally low figures. The most important operations in new Wheat, however, have been in Choice Red, Amber, and White, for future delivery, extending into September, and almost wholly to export buyers....Cotton has been less active, and quoted lower, closing irregularly....Wool has met with a readier market toward the close, and leaves off with more firmness. Provisions have been in more demand, but unsettled as to prices, closing more steadily....Hay and Hops have been in generally slack request at our quotations.... Tobacco more active at unchanged rates....Rice brisker at stronger prices....Naval Stores and Petroleum in moderate demand ...Grass Seeds dull....Groceries fairly active; Sugar and Molasses steadier....Ocean freights have been moderatively active, especially in the Grain, Petroleum, and Provision interests, but close lower....Grain rates by steam to Liverpool closed July 13th at 6¼@7d. (about 14 cents) per bushel; Glasgow, 7¼d.

London, 7⅛@7¼*d.*; Bristol, 7*d.*; Hull, 7⅛@8*d.*; the Continent, 9½@10½*d.*; by sail to Liverpool, 6½*d.*; London, 6½@7*d.* ₱ bush. Flour to Liverpool, by steam, 2*s.*@2*s.* 3*d.* (about 50@54 cents ₱ bbl.); by sail at 2*s.*; London, 2*s.*, and by steam, 2*s.* 6*d.*; Bristol, by steam, 2*s.* 9*d.*@3*s.*, and sail, 2*s.* 4½*d.*@2*s.* 6*d.* per bbl. Provisions by steam to Liverpool, 30*s.*@45*s.* per ton. Butter, in refrigerators, 125*s.* Cotton, by sail, $^{15}/_{64}$*d.*, and steam, ¼*d.* ₱ lb. Grain, by sail, for Cork and orders, at 5*s.* 9*d.*@6*s.* 3*d.* per quarter (8 bushels), and to Continental ports, 5*s.* 6*d.*@7*s.*; and from Phila. for Cork and orders, 6*s.* @6*s.* 3*d*, and from Balt. for Cork and orders, 6*s.*@6*s.* 3*d.*

CURRENT WHOLESALE PRICES.

	June 13.	July 13.
PRICE OF GOLD	100 7-8	100 1-2
FLOUR—Super to Extra State	$3 35 @ 4 75	$3 30 @ 4 50
Super to Extra Southern	3 50 @ 7 25	3 30 @ 6 75
Extra Western	4 15 @ 8 00	3 90 @ 8 00
Extra Genesee	4 50 @ 6 25	4 20 @ 6 00
Superfine Western	3 35 @ 4 15	3 30 @ 3 90
RYE FLOUR, Superfine	3 00 @ 3 65	2 70 @ 3 30
CORN-MEAL	2 10 @ 2 85	2 10 @ 2 90
WHEAT—All kinds of White	1 20 @ 1 30	1 10 @ 1 26
All kinds of Red and Amber	95 @ 1 18	90 @ 1 15
CORN—Yellow	45 @ 54	45 @ 53
Mixed	40 @ 46	40 @ 48
White	45 @ 57	45 @ 54
OATS—Western	37 @ 36½	50 @ 42½
State	28½@ 36	30 @ 42½
RYE	63 @ 68	59 @ 66
BARLEY	40 @ 80	Nominal.
BARLEY MALT	60 @ 1 10	60 @ 1 10
HAY—Bale, ₱ 100 lbs	35 @ 75	30 @ 75
STRAW, ₱ 100 lbs	35 @ 55	25 @ 50
COTTON—Middlings, ₱ lb	11½@ 11½	11¾@ 11½
HOPS—Crop of 1877, ₱ lb	5 @ 10	5 @ 12
" old, ₱ lb	1 @ 3	1 @ 3
FEATHERS—Live Geese, ₱ lb	35 @ 48	35 @ 47½
SEED—Clover, West. & St ₱ lb	7¾@ 8	7¾@ 8
Timothy, ₱ bushel	1 25 @ 1 40	1 25 @ 1 40
Flax, ₱ bushel	1 35 @ 1 45	1 40 @ 1 50
SUGAR—Ref'g & Grocery ₱ lb	6 @ 8¾	6¾@ 8¾
MOLASSES, Cuba, ₱ gal	25 @ 38	25 @ 38
New Orleans, ₱ gal	23 @ 48	23 @ 48
COFFEE—Rio (Gold)	13¾@ 16½	13 @ 17
TOBACCO, Kentucky, &c., ₱ lb	2½@ 14	2½@ 14
Seed Leaf, ₱ lb	4 @ 50	4 @ 50
WOOL—Domestic Fleece, ₱ lb	22 @ 45	20 @ 42
Domestic, pulled, ₱ lb	16 @ 38	22 @ 38
California, spring clip	12 @ 27	12 @ 27
California fall clip	10 @ 19½	12 @ 19
TALLOW, ₱ lb	7 @ 7	6½@ 7
OIL-CAKE—₱ ton	30 00 @31 00	28 50 @30 00
PORK—Mess, ₱ barrel	10 00 @10 35	10 25 @10 75
Extra Prime, ₱ barrel	Nominal.	9 50 @ 9 87½
BEEF—Extra mess	11 75 @12 00	11 00 @12 00
LARD, in trcs. & bbls, ₱ 100 lb	7 00 @ 7 35	6 75 @ 7 25
BUTTER—State, ₱ lb	8 @ 19	8 @ 20
Western, poor to fancy, ₱ lb	6 @ 19	5 @ 20
CHEESE	8 @ 8¾	8 @ 8½
EGGS—Fresh, ₱ dozen	13¾@ 15½	8 @ 14
POULTRY—Fowls, ₱ lb	9 @ 13	9 @ 13
Chickens, ₱ lb	18 @ 27	12 @ 18
" Penn., ₱ lb	— @ —	18 @ 28
Turkeys—₱ lb	9 @ 13	9 @ 15
Geese, ₱ pair	1 00 @ 1 50	90 @ 1 50
Ducks, ₱ pair	50 @ 90	40 @ 75
Roosters, ₱ lb	5 @ 6	5 @ 6
Capons, ₱ lb	24 @ 30	— @ —
PIGEONS, wild, ₱ doz	40 @ 65	65 @ 90
SQUABS, per dozen	40 @ 1 75	60 @ 1 25
SNIPE, per doz	25 @ 3 00	— @ —
APPLES—new, ₱ barrel	— @ —	1 50 @ 3 50
PEANUTS, domestic, ₱ bush	90 @ 1 50	1 30 @ 1 75
STRAWBERRIES, ₱ quart	5 @ 8½	— @ —
CHERRIES, ₱ lb	6 @ 12½	8 @ 15
CURRANTS, ₱ lb	— @ —	3 @ 8
RASPBERRIES, ₱ pint	— @ —	2 @ 5
BLACKBERRIES, ₱ qt	— @ —	6 @ 10
WHORTLEBERRIES, ₱ bush	— @ —	3 50 @ 4 25
GOOSEBERRIES, ₱ bbl	— @ —	2 75 @ 5 50
PEACHES, ₱ crate	— @ —	75 @ 3 50
PLUMS, ₱ quart	— @ —	5 @ 8
CRANBERRIES—₱ bbl	— @ —	— @ —
RADISHES, new, ₱ 100 bun	40 @ 75	40 @ 50
PEAS—Canada, in bond, ₱ bu	76 @ 78	— @ 77
" green, ₱ bush	1 05 @ 1 75	1 05 @ 1 10
" ₱ bag	— @ —	30 @ 50
POTATOES, new, ₱ bbl	1 25 @ 3 50	1 75 @ 2 75
POTATOES—old, ₱ bbl	1 25 @ 1 75	Nominal.
SWEET POTATOES—new ₱ crate	— @ —	Nominal.
BEETS, ₱ 100 bunches	2 00 @ 3 00	1 00 @ 1 25
TURNIPS ₱ bbl	1 00 @ 1 50	— @ 1 00
" white, ₱ 100 bunches	2 00 @ 3 50	2 00 @ 3 00
BEANS—₱ bushel	1 25 @ 2 50	1 25 @ 3 25
BROOM-CORN	3½@ 7¼	3½@ 7
SPINACH, ₱ bbl	37 @ 50	25 @ 50
TOMATOES, ₱ crate	50 @ 75	50 @ 75
CAULIFLOWER, ₱ doz. heads	40 @ 1 50	50 @ 2 00
CABBAGES—new, ₱ bbl	— @ —	2 00 @ 6 00
ONIONS—₱ bbl	— @ —	— @ —
" ₱ crate	50 @ 1 25	60 @ 65
RHUBARB, ₱ 100 bunches	1 25 @ 2 25	— @ —
ASPARAGUS, new, ₱ doz. bun	1 00 @ 1 75	— @ —
LETTUCE, ₱ bbl	50 @ 75	25 @ 75
WATERMELONS, ₱ 100	— @ —	20 00 @35 00
STRING BEANS, ₱ bbl	2 75 @ 3 50	75 @ 1 25
CUCUMBERS, ₱ crate	30 @ 1 25	35 @ 75

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
June 17	11,934	52	4,819	28,330	32,261
June 24	11,572	35	4,295	23,000	26,237
July 1	8,254	83	5,488	27,290	29,133
July 8	8,941	41	2,726	24,779	27,501
July 15	10,014	60	3,692	28,496	23,198
Total for 5 Weeks	50,715	271	21,010	131,923	138,450
do. *for prev. 4 Weeks*	46,195	166	19,413	115,071	135,448

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	10,143	54	4,202	26,384	27,690
do. do. *last Month*	11,548	41	4,853	28,708	33,962
do. do. *prev's Month*	10,138	51	4,182	21,570	30,442

Beeves.—The month's business has been full of disaster to dealers. A worse market than has been found the past month has never been known, and prices fell lower than we have any precedent for. The receipts have been large, and the demand both from butchers and for export has been small, and between the two, dealers have lost very heavily. Towards the end of the month lighter receipts gave matters a better look, but still the market dragged along, and purchasers did about what they pleased with the stock offered. At the close the market again fell off ¼c. per lb., sales being made at 7½c. per lb. for Texans, to dress 55 lbs. per 100 weight; 8¼c. for fair natives, 56 lbs. to the 100. The extreme price paid was 11¼c. for extra steers of 1,635 lbs., estimated at 57 lbs. dressed weight on 100 lbs. live.

The prices for the past five weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
June 17	7 @11 c.	8½@ 9¾c.	9 c.
June 24	7 @11¾c.	8 @ 9¾c.	8¾c.
July 1	6¼@10¾c.	8½@ 9¾c.	8¾c.
July 8	7¼@10¼c.	9 @10 c.	9¼c.
July 15	7½@11¼c.	9 @10 c.	9½c.

Cows.—There has been no demand for cows, and to sell those which have been offered has been impossible at any price. Milk from the country has sold as low as $1 per 40 quart can, and city dairies have no inducement to buy cows. There are no prices, and quotations are nominal.

Calves.—The demand has been good for veals, and with a short supply trade has been active, and prices tending upwards. Naturally, things took a turn, more stock came forward, and the market, uneasy all over, declined at least ½ ct. per lb., with a dull feeling. The closing market was weak, with sales of buttermilk calves at 3c.@3½c. per lb., live weight. Veals brought 6c.@6¼c. for good to extra, dead weight. Grass calves were as low as 4c. per lb., dressed.

Sheep and Lambs.—A gradual improvement has marked the course of trade in this stock. The supply has been fair, the quality good, and the demand strong. Prices advanced up to the end of the month, when trade became weak, and prices declined. A falling off is to be noted as we close our report, and a range of prices from 4¼c.@5¼c. per lb., live weight, with 5¼c.@6¼c. for lambs.

Swine.—Hogs have been steady, without much change in prices. The final quotations are 4¼c.@4¼c. per lb. for live hogs, and 5¼c.@6c. per lb. for dressed, with a firm market.

The Horse Market.—The supply of horses the past month has been less than usual. At the same time trade has been very quiet. Over 2,000 head have been exported so far this year. In Europe the horse trade is very much depressed, and the now almost certain prospects of peace have not tended to change this feeling. There promises, however, to be a steady demand for useful horses for the "tram-roads," as the car routes are there called, and it is to be noticed that our thoroughbred horses are coming into favor there. Quotations are nominal, city business being entirely suspended at present.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	44.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per ₱	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₱ ton	$56.50
do. do. Lobos, do. do., do	47.50
do. do. guaranteed, ₱ ton, cargo H	56.00
do. do. rectified, per ton, 9.70 p. c..	69.00
do. do. do. do. 8.40 p. c.	51.00
Soluble Pacific Guano, ₱ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. do. Grain and Grass, ₱ 1,000 lbs.	25.00
do. Fruit and Vine Manure, do.	17.50
do. Bone, strictly pure, meal ..... per ton.	42.00
do. do. do. extra fine.... do.	40.00
do. do. do. fine..... do.	38.00
do. do. do. medium..... do.	36.00
do. do. do. dissolved..... do.	42.00
Stockbridge Corn Manure, per acre	20.00
" Potato do do	10.00
" Tobacco do do	50.00
" Rye do do	10.00
" Wheat do do	15.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
Gypsum, Nova Scotia, ground, per ton	8.00
Nitrate of Potash (95 per cent.), per lb.	9 @9½c.
Sulphate of Potash (potash 44 per cent) per lb.	3½@4 c.
do. do. (potash 27½ per cent) per lb.	1¾@2 c.
German Potash Salts (potash 12 to 15 p. c. p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb.	2 @2½c.
Nitrate of Soda, per lb.	4 c.@4½c.
Sulphate of Ammonia (25 per cent.), per lb.	4½c.@5 c.
Dried Blood (ammonia 14 per cent) per ton	$45.00@50.00

"Big Head."—"A. V. C.," Pensacola, Fla. This is a disease of the bones of the head, and consists of a spongy growth of bony matter, which not only injures the jaws or the skull, but causes tumors and abscesses in the muscular covering. As these abscesses have their origin in the diseased bone, they can not be cured by any direct treatment of them alone. The diseased bone must be cut away. As it is obvious that, to remove the bone of the skull or that of the jaw, would seriously affect, if not fatally injure the horse, this disease is classed among those which are incurable, except through a favorable natural action by which healthy bony tissue may be deposited, and the disease cease. The trouble is constitutional, and scrofula is generally the predisposing cause. No amateur treatment can be recommended. The advice of a competent veterinary surgeon should be sought. We are aware that such advice as this is difficult to get, but it is to be hoped that it may not be many years before skilled veterinarians may be available, and that their need will be recognized.

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the American Agriculturist, containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.60 per volume.

The Latest Crop Reports to this date (July 16) are generally very good. The fears that the open, mild winter, and early, warm spring would be followed by a cold, wet summer, have not been realized. The hot weather during the last of June and the fore part of July, was just what the corn-crop wanted, to push it ahead rapidly, and, with the large acreage, the yield will be very great, if it is not cut down by unusually early frosts. The favorable weather also helped to filling out the wheat at the North, where it was not ripe. The later rains of the second week in July, while interfering with wheat-gathering somewhat, came just in time to avert the parching effects of the hot spell. Thus far, we have every indication of considerably larger yields of the great staple crops even than last year, taking the country as a whole; there are exceptional places where storms, insects, worms, etc., have injured the crops. These magnificent crops, while tending to lower the prices per bushel to be obtained by the producers, yet furnish a fair income from the large quantity, and an abundance of cheap food will help out manufacturing and other pursuits, and tend to set in motion the wheels of industry generally; more products to be moved by railways, means more iron to be used, and more manufactured products to be consumed. This wealth from the soil will tell strongly towards a recovery from the depression of the past five years. Our wheat and corn, however abundant, cannot sink in price below a certain figure, for the lower the price, the greater will be the foreign demand, as well as the larger the consumption in our own country, which will prevent any disastrous fall in prices.

Railroad Crop Reports.—The Chicago and Northwestern Railway Company has inaugurated a most important system of gathering accurate reports of the condition of the leading crops, from the hundreds of stations along the great extent of road it owns or operates. The strict discipline among railway employees, enables the managers to gather very complete and systematic reports, and it is desirable that every principal railroad running through agricultural regions should adopt the practice. From the reports of the C. & N. W. R. R. for the early part of July, we learn, that from 266 stations where wheat is the main crop, 102 report the wheat above the average of last year's large yield; 126 report it as good; and only 38 as not so good. Of 273 stations where Corn is the main crop, the acreage reports from 139 stations are larger than last year; 133 about the same, and 1 below. Of its condition, 12 report it better than last year, 155 as good, and 106 not as good. The recent hot weather has doubtless greatly improved the corn crop generally.

A Selection of Roses.—A correspondent in Iowa, apparently a beginner in business, asks us to give a list of the best "Hybrid Perpetual Roses, the best white, the best crimson, the best climber, etc." He says that "the *American Agriculturist* has been worth a small fortune to me;" and though we are desirous of aiding so appreciative a correspondent, he has proposed a very difficult task. The rose catalogues number thousands of varieties, and each year twenties, if not hundreds, are added to the list, hence, to give a list of "the best," is a matter almost impossible to one who is not a "rose fancier." We can perhaps help our friend by giving him a list, if not of "the best," of really good sorts. The name "Hybrid Perpetual" is a thorough misnomer—so far as the "perpetual" goes, and if we wish a succession of bloom, during summer and autumn, we must take China and Tea Roses, which are not usually hardy. These are generally smaller in flower, and of less vivid color than the others, but they bloom almost continuously. As to the "Hybrid Perpetuals," for which the better name is "Remontant," we should for six, well established and standard kinds, take *Baronne Prevost*, pink; *Charles Lefebvre*, reddish crimson; *General Jacqueminot*, richest crimson; *Madame*

Lacharme, white, with a blush of pink; *Madame Victor Verdier*, brilliant carmine; *Paul Neyron*, rose, and of great size. We might go on and pick out other sets of six, but we should not like to be without either of the above. As to the best white rose, perhaps *Madame Plantier* will give most general satisfaction. It is classed as a "Hybrid China," is with us perfectly hardy, and though the flowers are not very large, they are in great abundance. Several climbing remontants have been offered of late years, which we have not tried. The best climber we have is *Queen of the Prairies*, for vigor and abundance of bloom, but the *Gem of the Prairies*, fairly vigorous, is fragrant, and on that account preferred by many. As to crimsons, *General Jacqueminot*, already mentioned, is one of the reliable sorts; it is not so double as some, but a free bloomer, and most brilliant. We advise our Iowa friend to get the catalogues of those dealers who make a specialty of roses, and to test those varieties which promise to be hardy in his severe climate.

Agricultural Education at the Mass. Agricultural College, has at last been placed practically on the basis of free tuition by a recent action of the trustees, who voted "that each graduate [of which there are now over 150] of the institution be allowed the privilege of nominating one student to a free scholarship for the full course of four years." A friend has also offered to pay the tuition for the course of every worthy student presenting himself for admission to the next class, who shall meet the requirements as to scholarship, etc. The expenses of living have also been so reduced, that the cost to those having the scholarships need not be over $150 a year, a portion of which can be earned by work upon the farm. A farmer's son, or any young man who desires to get a good agricultural education, has in these offers an exceptional opportunity. Applicants should address President W. S. Clark, Amherst, Mass.

How to Carry a Watermelon.—We feel very sure that when a thing is really needed, it will be supplied by some inventor. No one article in the market is more unmanageable than a watermelon. There was no difficulty in raising watermelons in Florida and Georgia, no trouble in placing them on sale in New York—and good melons too, by the way—at about the time that people in the vicinity were putting in their seeds. Melons were easily raised, easily transported and placed on sale, but there was a great obstacle to selling them, and that was in the melon itself. It was too large for the average basket, too troublesome to carry under the arm, and though it might be easily carried on the shoulder, the people would not "tote." In short, there must be an easy way of carrying melons, or they must remain unsold. Last season melons were offered, lashed with tarred spunyarn, evidently the work of sailors; this helped somewhat, but this year the fruit has appeared, furnished with a regular handle. Evidently the idea was borrowed from the now popular shawl-strap. At all events, some genius has hit the popular want, and supplied, what nature failed to do, a handle, by which the watermelon can be as easily carried as any other parcel. The essential part is the handle made of bass wood. This has a sufficient supply of strong twine, and two "beckets" of the same wood to distribute the pressure.

When the melon is harnessed and ready for travel, it appears as in the figure. We have more than once said that the raising of vegetables and fruits was a small matter, as compared with the proper selling of them. Some genius, by means of this simple contrivance, has greatly facilitated the selling of watermelons, and has thus added to the value of many acres in the Southern States.

About Preserving Green Corn.—We have several times stated that we knew of no method of *canning* green corn that was practicable in families. Mrs. C. C. R., who writes a very pleasant letter, thinks we are in error in this, and sends us her method, which is not in the proper sense, canning at all, but a method of pickling. By *canning* fruits or vegetables of any kind, we understand the putting of them up by the thorough exclusion of air, with sugar, salt, or other seasoning sufficient to make them acceptable when eaten, but which has nothing to do with their preservation. Mrs. R. uses tartaric acid, which is really *pickling* the corn, just as other vegetables are pickled in acetic acid, or vinegar, but it is not *canning* the corn in the proper sense of the term, or by the method followed by those who put it up for market. We have, in former years, given the method of preserving green corn by means of salt, and also by the use of tartaric acid, but as this last was several years ago, we give Mrs. R.'s method, with the remark that it has been commended to us by several other housekeepers, though we never happened to try it ourselves. It is really *Pickling Green Corn in Tartaric Acid*. Mrs. R. says: "Cut the corn from the cob, and cook it in a plenty of water for about 5 minutes. To every 6 quarts of corn (measured before cooking or adding water) add one ounce of *Tartaric Acid*, dissolved in a little water. Put the acid in while cooking. Dip into the cans, and seal immediately. It will keep for years. To prepare this for the table, pour off the sour water (which is to be saved), and put in fresh cold water. To a quart of corn add half a teaspoonful of soda, and a teaspoonful of sugar. If you should add too much soda, the corn will turn yellow. In that case, add enough of the acid water (to be saved for the purpose) to turn it back again to the proper color."

A Rustic Chair, Easily Made, and quite ornamental, in even a small lawn or yard, is here illustrated. The sketch is from a chair we saw on the grounds of Dr. R. S. Bacon, at Flushing. It is most durable if made of cedar, but any wood will answer. The main piece is a pole say 4½ feet long, 3½ to 4 inches in diameter at the base, and an inch less at the top. This stands inclined 25° to 30° from a perpendicular. Three other short pieces nailed upon it, supply the necessary legs or supports. The other round sticks are added as shown. The Seat has four side-pieces, filled in with the parallel pieces which are nailed to the front and rear border piece. The side pieces come forward far enough to supply arm rests. The whole is made of round, undressed limbs, or small saplings, nailed together. A hatchet to cut the sticks, with hammer and nails to fasten them together, are all the tools needed. Any smart boy can put together a trial chair, on a rainy day, and afterwards make up as many as he chooses from any wood.

Remarkable Shooting.—On July 13 we witnessed for an hour the shooting feat of Dr. W. F. Carver, who during 7 hours and 38 minutes (or 8 hours and 10 minutes, including resting spells), fired 6,212 times at glass balls flying in the air. Of these he hit and broke 5,500, and missed 712. He attempted to break the 5,500 glass balls in 500 minutes, and accomplished it in 489 minutes (11 A. M. to 7:9 P. M.). The wind blowing from the front drove much smoke into his eyes, causing many of the misses. Those present at the finish say he seemed to suffer no inconvenience from the effort, except that produced upon his eyes by the smoke. The glass balls were 2⅛ inches in diameter, and filled with feathers, which flew out in all directions, as the balls were broken. They were tossed up by hand 20 to 30 feet in front of him, and each ball had to be aimed at and hit on the fly, with a single bullet (not with a handful of shot), and between each shot the gun was lowered, the old shell thrown out, and a new one inserted, and the gun then raised and aimed. We noted several instances where 16 shots were fired in 19 to 24 seconds. As the loaded rifle weighs 10 lbs., the raising of the gun 6,212 times was equivalent to lifting 62,120 lbs., or 31 tons. The strain upon the eye and nerves of taking sight so many times must have been very great. This experiment shows the power of endurance which the human body and mind are capable of, and in this respect is interesting. It can be of little practical utility for others to learn to shoot on the wing with the rifle.

Another Clover-Weed Seed.—On p. 103, March No., magnified engravings are given of the seeds of the weeds common in clover in this country as well as in England. It is there remarked that some of the commonest weeds of the English clover fields are scarcely known here, while we have a number of pests unknown in England. We expected that the article referred to would cause our readers to look sharp to their clover-seed, but some have anticipated us, and long before the article reached them, several have forwarded us samples of clover-seed, to inquire as to the foreign seeds mixed with it. Two or three of these samples contained a small flattened, shining black seed, shown in the engraving here given, of the natural size, and magnified. In one case the clover contained so much of this as to attract the attention of even the most careless. The seed is evidently that of one of the "Knot-weeds," or *Polygonums*. The genus *Polygonum* is a large one, and includes species very unlike in appearance, from the little "Knot-grass," or

"Door-weed," (*P. aviculare*), found in almost every yard, up to the showy "Ragged-sailor," or "Princes' Feather," (*P. orientale*), often seen in old gardens, and growing 5 to 8 feet high. Other well-known species are the acrid "Smart-weeds," or "Water-Peppers," of which two are common in moist places. Another very frequent weed in fields and gardens, is a branching species 2 feet or more high, with a usually reddish stem, and leaves shaped so much like those of the peach that it is named *Polygonum Persicaria*, and is known in England as "Persicary," or "Peach-wort," but with us, on account of a large blackish spot (usually present) in the center of each leaf, as if it had been pressed by an inky thumb, it is in this country usually called "Lady's Thumb" and "Black Heart;" its small greenish purple flowers are crowded in close oblong spikes at the ends of the branches. Besides this, there are three other species of a very similar habit and aspect, and only distinguished from this by botanical characters, which we need not give, for so far as the cultivator is concerned, the plants are practically alike. All have similar seeds, though differing in size, and some minute particulars, but they are sufficiently like the seed here engraved, (which is apparently that of *P. Persicaria*), to allow them to be recognized under the *American Agriculturist* Microscope. They are all annuals, and on that account less to be dreaded than some perennial weeds. But they are *weeds*, and will, if each one gets a start, occupy the place that belongs to a clover plant. For this reason, clover-seed that contains *any other seeds* than clover, is to be regarded as foul, and should not be sown. It is true that there is a choice of evils, and these weeds are of little importance as compared to "Viper's Bugloss," Toad-Flax, "Canada Thistle," and others. Still they rob the crop of nutriment, and rob the farmer by occupying the land unprofitably. *Sow clean seeds.*

Basket Items continued on page 313.

Sundry Humbugs.

In our warnings against humbugs, we have confined ourselves to those practised upon the community in general, and especially upon the agricultural or rural portion thereof. By doing this, we leave the field of special humbugs untouched, for there is hardly a general occupation or trade that is not afflicted by its peculiar frauds.....In investigating the various humbugs we are brought in contact with local as well as United States officers, from whom we sometimes learn new and special forms of rascality, but as they do not, as a general thing, affect the readers of the *American Agriculturist*, we do not mention them. Among the specialties are the various tricks played upon

KEEPERS OF HOTELS;

indeed one of these has become a regular thing with a certain set of sharpers. As keepers of hotels, especially in small towns, are farmers also, and a good number of them are readers of the *American Agriculturist*, we give an account of one which has recently been the means of swindling many inn keepers, especially in the Western States. Scene, a hotel in a small town—but a flourishing town—in Illinois. A young man arrives, calls for the best room in the house. He enters his name in a bold hand on the register as Turner, of the jewelry house of "Smith & Co., New York. Manufactory at Providence, R. I." The first thing he asks for is letters; finding that there are none, he particularly inquiries of the times for the arrival of the mail, as letters of great importance were

to meet him there. Has had a dusty ride, it is some time before the dinner hour, and he orders a bottle of the best wine in the house; he does not like to drink alone, and the landlord must help him dispose of the bottle. The young man's chief want seems to be letters, and all the next day he asks at every mail's arrival for letters. At last the looked-for letter comes, he hastily opens it in presence of the landlord and takes out a check. He curses the stupidity of the cashier of the house in New York. "He might have known that there was no bank at this place. I charged him to always send money in a registered letter, and here is a confounded useless check (for $100 or $200, as may be). I am notified that a case of samples are sent to —— (the next town), where I must go at once, and here I am with nothing but this check." And more of the same sort. The landlord is good-natured, the young man is good looking, and free with his wine, and the chances are that the landlord ends the young man's trouble, and offers to cash the check—minus the young man's wine and board bill. Young man is very grateful, gets his check cashed, and starts to the next town for his samples. But he does not stop there, he goes on to some other place, as may have been agreed upon, where the same game is played over again; the same anxiety about letters; the same disappointment at receiving a check instead of money, in a town where there was no bank, etc., etc. As the checks are drawn on some New York Bank, it is a number of days before the landlords discover that they are mere worthless paper, and the young man, who, of course, never goes where he says he is going, is far out of reach.

A LARGE NUMBER OF LANDLORDS

in the Western States hold the worthless checks of "Smith, Melville & Co., Manufacturing Jewellers in New York; factory at Providence, R. I." But of course the name is changed from time to time. We have some of the checks, and can say that, taken as checks, they are very pretty....Here we have again

CLARK & CO. WITH A NEW NAME.

In some branches of science there are books giving *synonyms*, or the different names by which an animal or a plant has been called. We shall soon need such a list for Clark & Co.; it would include Russell & Co., Hetheridge & Co., Keyes & Co., and we now have to add W. P. McCall, who hasn't a bit of a "Co." to his name. But W. P. still sends out the same persuasive circular headed "A Decision at Last," and informs people that they can get "One lot of Gold Jewelry (60 Different Pieces), valued at $220.00," and that "the percentage due is $11.00." W. P., that, in these hot days, is a little too much for such jewelry as yours; seventeen cents apiece for Jewelry things! We can go down into the back woods of Maine and beat you as to price. No wonder your concern changes its name so often if it asks so much for Jewelry. One of our friends at Seekonk, Mass., is not a little indignant that W. P. McCall should have sent him—who never bought a lottery ticket in his life—a circular pretending to adjust some old lottery claim. This is nothing to the case of one of our friends, who is one of the most staid and steady going of the Society of Friends, who received a letter asking if a certain signature was his, and if so he was entitled to certain mining shares! It only shows that these chaps who buy their old letters by the thousand, for the sake of the signatures, are liable to occasionally "wake up the wrong passenger."....The circulars of that

CINCINNATI ART CONCERN

now begin to come in from the Pacific coast. We can only say to our friends there, as we have to those nearer home—Don't. These people profess to have had a "drawing," and anything that looks like a game of chance should repel all right-thinking people. The pictures said to be drawn, are sent for a charge for packing, and there will be the express charges to Oregon, etc., besides. We feel very sure that nothing can be sent under these terms worth paying the freight charges on.

THE NON-EXPLOSIVE POWDER CHAP

is around in Central New York with his stuff to put into kerosene lamps to prevent explosions. It seems that this humbug is not dead yet, though we several years ago showed that the powder was only common salt, colored with a little Prussian blue, or cheap ultramarine. It can have no possible effect upon oil, and if it induces people to use poor and cheap oils, it is murderously dangerous. The only safety is in good oils and good lamps. Nothing can make poor oils *safe*....A Vermonter saw in a leading agricultural paper an attractive advertisement of

"CRYSTAL GLASS GOBLETS,"

which he ordered. After much delay, he received a half dozen, costing him, including express charges, $2, and he found them such goblets as he "could buy at any store for a dollar a dozen. He thinks it very wrong for the paper to publish such an advertisement. We think so, too; but as the advertising columns of our own paper are all we control, we don't see how we can help him. ....We have had occasion to refer to the

NOVELTY CATALOGUES,

so called, in general terms, but to specify these would but serve to advertise them. Some of them are pamphlets of 30 or more pages, and offer a remarkable lot of articles, some of which are mere toys, or harmless enough, but intermingled with these—and hardly concealed by them—are offered things of the most pernicious character. For example, in a publication of this kind now before us, we have offered: "Spy-glasses, an article valuable to every farmer;" next, several trashy books, and then "Transparent Cards," which it is not necessary to describe to those who know what they are, and those who do not know them, get a very broad hint in the information that the pictures "are of such an intensely interesting character that our agents retail them at fabulous prices." Every possible trick is resorted to, to get the addresses of school-children of both sexes, and they are then plied with advertisements of the kind above quoted....Here is a letter from a lawyer in Washington Territory, from which we infer that one of his clients has received

"A PACKAGE OF JEWELRY"

from one of the many dealers in the bogus article in New York. The lawyer asks us to investigate the matter, and if we find the concern to be, as he believes it, a fraud, to expose it.—No, we thank you. It is altogether too hot weather for us to go up towards Union square, to learn what we already know. We know that a concern that sends jewelry to one who has not ordered it, especially of that kind which sells for $30, and will bring at retail $135, need not be looked after. It is an old dodge. A bogus jewelry chap on Broadway sends to J. A., in Washington Territory, a parcel by express. J. A. receives parcel, pays charges on it. In due time a bill comes, which J. A. does not pay. After a while comes a shyster lawyer, to collect the bill; he can prove that J. A. took the parcel from the Express office; the presumption is that he ordered it, and the chances are that he will have to pay for the stuff. The only safe way is, not to receive packages from the Express, unless one has been previously notified of their contents. We are informed by an officer of wide experience that some of the subordinates in the Express offices—well, to say the least—do not try very hard to prevent such swindles as these of forwarding packages of jewelry to those who have never ordered them—Moral:

SCRUTINIZE ALL EXPRESS PARCELS

with care....So many letters on medical matters had accumulated that we last month treated them in a special article on "Medical Matters," and so

ON GENERAL PRINCIPLES,

we advise every young man who thinks he has some trouble—we say, "thinks," for such troubles are largely imaginary—to let alone all "doctors" and combinations of doctors calling themselves "Institutes," and advertising to cure such troubles. We do not know that all are equally vile, but we have known of cases in which chaps, calling themselves "doctors," and "Institutes," have threatened to expose young men with unfortunate, but not immoral troubles, to their families and friends, except for a certain weekly pay. Any one who advertises to cure any particular disease, at once cuts himself off from all fellowship with regular medical men, and is an outcast from the profession. Have nothing to do with such, whether they are banded together, or prey singly on the unsuspecting, but go to some real physician, in whom you can have confidence, and let all advertisers thoroughly alone ...Abbey, the Buffalo quack, who has, under pretence of sending a

PUZZLE PICTURE,

succeeded in bringing his nasty book to the knowledge of decent people, claims to have sent out millions of his "Toll-gate" pictures. His dodge is to offer a "puzzle picture," and family and religious papers have advertised it, apparently without question as to what it would lead to. A very coarse "puzzle" picture about the size of an ordinary envelope is sent, and on the back are the announcement of books and medicines, such as no decent person has any need of, and which young persons need know nothing about. The chap is out with a new picture, which he sends to every post office in the country for distribution. The P.M. at a small office in Massachusetts writes that hundreds have come to his little office in packages of 25 or 30, with a request that they be distributed. We are glad to know that there is one Post Master—no doubt there are hundreds more—who will not engage in any such dirty work...."A Victim" in Penn. writes that he has taken half a dozen bottles of some

"ANTI-FAT" COMPOUND,

with a view to reduce corpulence, and that while taking the stuff he has *gained* just ten pounds! and asks what he shall do. Evidently one thing to do is to stop taking the stuff. He may, no doubt, find useful hints as to diet and exercise in Banting's work on Corpulence, which has been reprinted in this country. Our general advice, to take no secret compound whatever, applies here.... We thought that the medical part of our budget was of a rather tame kind—but we were wrong. Here we have that in "The Little Blue and White Book," which we only before had in a poor shabby black and white circular. It is:

"NARROW ESCAPE FROM DEATH.

TRUTH STRANGER THAN FICTION.—(If we mistake not that has been mentioned before)—THE TRUE HISTORY OF UNOKAS PILINDIAS." That is all on the "Kiver" in blue and white—and very pretty it looks. We read on the first page on the inside "Truth Stranger than Fiction," which we insist is not an original remark, and "Mistaken Identity of a Disease we are all subject to. How, after two years of suffering, the Patient was cured by an INDIAN SQUAW"—it is a touching story, and we have already told it in these columns. Like all such stories it has its moral, which is, take "Unokas Pil indias and Live"—or "Neglect them and Die." It is too hot this July night to think which we will do, but as for Unoka, "Inventor of Unoka's Pilindias," of whom a portrait is given, she looks as if, had she turned her hand to it, could do a powerful amount of washing. But on the last page of the cover we have a portrait—not of Miss Unoka Pilindias again, but of her *arm* only. We know it is hers, not only because it is so labelled, but from the big development of muscle, which could only come of washing; that arm has a hand, and that hand squeezes five snakes, such as were never seen before. She has an awful power of squeeze, and the way she makes them snakes spout fireworks is just stunning. There is a most pathetic appeal on the last page of this pamphlet to "Dear Reader":—the writer believes, or says he does, that should we have "any of the complaints referred to in his little blue and white book, we will give Unoka's Pilindias a trial"—to which we say most assuredly not. We shall avoid, and advise all others to avoid all such out-and out quackery.

Oleomargarine and the Butter Market.—It is worth while for dairymen to consider whether present low prices of butter and cheese, are influenced by oleomargarine. Years ago the *American Agriculturist* pointed out the certain result of its competition with honest butter and cheese, viz., lower prices and difficulty of sale. Now the truth of the statement is apparent, and even the gilt-edged product of the dairy, which cannot be produced for less than 50 cents per pound, goes a begging at 25, while the "Dairy Company's" product, olemargarine, butterine, and other compounds of rendered fat and sour milk, are driving true dairy butter out of the market. Well, perhaps dairymen have none to thank for it more than themselves. Their leaders in conventions, have glorified and advertised this stuff; professors have "essayed" upon it, and have proved in the very teeth of its natural opponents, that it was really as good, if not better, than genuine butter: that it possessed all its virtues, and none of its faults; while dairymen stupidly let this thing go on, and permitted the oleomargarine men to filch away their markets, and customers. If dairymen have been willing, who shall say nay? but on behalf of the innocent consumers, we continue to protest, and shall continue, while waste fat is palmed upon them for pure butter.

The Beet-Sugar Industry of France.

In 1824, France produced a total of 15,000 tons of beet-sugar, in over 100 factories. In 1837, the product was 49,000 tons. France, since that time, has doubled the product of beet-sugar every ten years. In 1820, the product was only 2 lbs. for each inhabitant; in 1865, it was fourteen pounds per capita. Since 1865, except in the immediate vicinity of the seaboard, no sugar is seen or used in France except the beet-sugar. The same is true of Germany. This is almost the only sugar used in Paris, Vienna, Berlin, Dresden, Leipsic, or Munich. In 1837, the yield of beets per acre was twelve tons; price $3 per ton. In 1865, the yield was sixteen tons per acre; price $3.25. The percentage of sugar contained in the beets, in 1837, was 10 per cent; in 1865, 11¼ per cent. The cost in 1837 was 7 cts. per pound; in 1865, it was reduced to four cents per pound. Thus, it has required nearly a half century to establish this great and valuable industry on the Continent of Europe, on such a basis as to defy competition, and we now have the benefit of their experience. It has been the result of careful and continued attention to thus increase the product, as well as the percentage of sugar in the beet, and this by studying carefully its natural laws, and by the application of chemical knowledge and mechanical ingenuity to extract the sweet therefrom, to purify it, and render it suitable for the most fastidious tastes. This sketch, while relating mainly to France, applies also to the rest of Continental Europe; France only led in the race. Such is a brief history of the growth of the

industry up to 1865, and since that time its continued success is shown by the following statistics: Total product of beet-sugar in 1853, 200,000 tons; total product of beet-sugar in 1863, 452,000 tons; total product of beet-sugar in 1873, 953,000 tons. It may be considered as one of the established industries of the temperate zone, and only awaits the judicious application of capital and labor to establish it on any suitable soil, and in any proper locality. The permanent effects produced on agriculture in France by the cultivation of beet-sugar have been astonishing. In the cane-sugar districts, no other crop is to be seen, while cattle, sheep, and hogs are few. In the beet-sugar districts of Central Europe, on the contrary, the fields are crowded with the greatest diversity of crops, such as beets, wheat, rye, oats, barley, etc., as well as all of the cultivated grasses. No farmer there need to be told which system is the most enduring. On a great public occasion, the following significant inscription was placed on a triumphal arch: "Before the manufacture of beet-sugar, the arrondissement of Valenciennes produced 695,500 bushels of wheat, and fattened 700 oxen. Since the manufacture of beet-sugar was introduced, the arrondissement of Valenciennes has produced 1,157,750 bushels of wheat, and has fattened 11,500 oxen." A farm of 832 acres in France, the product of which, with the ordinary farming, amounted to $8,000 per annum, with six years of beet-sugar cultivation, produced $41,200 per annum. Another farm, of 295 acres, produced 5,295 bushels of wheat, 2,500 tons of beets, and fattened 150 head of cattle, per annum. The farmers attributed their success as cultivators entirely to the immense amount of barn-yard manure, which the beet-pulp gives to the stock, enabling them also to effect an improved condition of the soil. The improved and increased amount of profitable culture of the land consequent upon beet-culture is now universally acknowledged, and wherever the beet is cultivated, lands advance in value, and wages take the same direction. Cows fatten upon the leaves and pulp, and also produce more and better flavored butter and milk than when fed on grasses; so that the production of sugar from the beet adds to the supply of bread, butter, and meat; and these—the leading necessities of man's existence—stimulate and aid each other.

Varieties Used—Harvesting and Storing the Crop.

The varieties of sugar-beet most extensively used are the White Sugar, or Silesian, the Imperial, and the Quidlingburger, and they penetrate the soil from eight to twelve inches. The most desirable weight is from 1½ to 4 pounds each. Their greatest diameter is from three to six inches. Large or overgrown beets are very poor for sugar. If the soil is cultivated to a suitable depth, the beet-root will grow entirely beneath the surface; but when the ordinary cultivation is used, being unable to attain its length below the surface, it will extend above the ground; where, exposed to the sun's rays, it is injured, and less productive. Any soil that is suitable for wheat, which has been under cultivation—the longer the better—that admits of deep tillage, clear of stones, with a clay tendency, is suitable for beets. The soil of Maryland is well adapted for growing beets, and, in fact, many parts of nearly all the older States of the Union; and the industry ought to be generally introduced into this country at an early day.

AN OLD FRENCH FARMER.

Some Bee Notes for August.

BY L. C. HOOT, MOHAWK, N. Y.

Since the writing of July "Notes," the outlook for bee-keepers has assumed a much more encouraging aspect. The very warm days of the last of June and the first of July, have, in a degree, retarded the rapid gathering of honey. During extremely warm weather, great care should be taken to ventilate each hive, and to keep the apiary shaded from the direct rays of the sun, as the combs are liable to be melted down. Follow directions given last month, and remove box-honey from the hives as fast as the boxes are well filled. In localities where buckwheat and other late forage abounds, the boxes removed may be replaced with empty ones. Each bee-keeper must learn the honey resources of his special locality, and not continue adding boxes too late in the season, as the boxes may not be filled, and hence may get soiled and unfit for use. After removing boxes, the bees may be driven from them with smoke; or the boxes may be placed in an empty hive, box, or barrel, and a cloth thrown over it, leaving a slight opening at one side, where the bees may pass out and return to their hives. Box-honey should be examined occasionally, to see that the moth-worm is not injuring it. If only a few are found, they may be removed, but if badly affected, the worms should be killed by placing the boxes in another box, and smoking them with brimstone. Care should be taken not to extract the honey from the body of the hive, so late in the season that the bees can not gather a sufficient amount to winter upon. Allowing bees to swarm late is often objectionable for the same reason. We should have the requisites for successful wintering in mind, even at this time of the year.

HONEY YIELD.—I have selected a very strong swarm of Italian bees, and have given it very particular attention, furnishing extra combs from time to time, and, in fact, have endeavored to secure the most favorable conditions in every respect. At present, it contains thirty-two (32) movable combs. I propose to extract the honey from these combs, with the honey extractor, during the entire season, returning the empty combs to be refilled; and will report dates and amount of honey taken at each time for the benefit of the readers of these "Notes." The first honey was taken July 5th, amounting to 90 lbs.

How the Fourth was Celebrated at "Houghton Farm."

Those who think that the national holiday can only be properly celebrated by going somewhere—anywhere away from the farm, and that a plenty of powder and punch are necessary to a proper enjoyment of the day, may take a hint from the manner in which the last Fourth was celebrated at "Houghton Farm." This farm is a beautiful spot among the mountains of Orange Co., N. Y., and is likely to be heard of hereafter by the readers of the *American Agriculturist*. Suffice it to say for the present, that, taking all its departments together, a goodly number of hands are employed, the head farmer, and some others, having families upon the place. The Celebration was quite impromptu, and owed its success to the heartiness with which all entered into the scheme. There were the proprietor, his family, and his guests (of which the writer was one), and the various farm hands, conspicuous among whom was the head stable-man, the prime mover in the out-door sports, one and all bent upon having a good time—each one being desirous of doing something to help. Where such a spirit prevails, each desirous to please, and of being pleased, the rest is not difficult. The very near neighbors were invited, and as those farther away had wind of the doings, there was, by 4 o'clock, quite a large assemblage in and around the field where the first performances took place. Friendly clouds made active exercise tolerable, and the young men, encouraged by prizes, which ranged from small sums of money, to "the makings" of a corduroy suit, entered into the sports with a will. First came a game of "Blind Man's Buff," in which each blinded man had a straw-stuffed canvass club, with which he was to hit one of the number who was not blinded, and he carried a bell as a guide to his whereabouts. There was, of course, much hitting of every one but the right one, and much amusement was afforded. Then there was a foot race of 100 yards, in which length of leg plainly told. In contrast came a sack race, wherein a dozen, each with legs and arms confined in a sack, started, while but few, on account of tumbles, reached the mark. Next there was diving for a coin at the bottom of a tub of water, the winner to fish it out with his mouth. This, which made great sport, was followed by a wheel-barrow race, in which the blind-folded contestants showed much skill. The last, and most amusing race was of 25 yards, each each one carrying a pail of water on his head; the one who had the most water in his pail on reaching the goal, being the winner. There was of course much spilling of water and wetting of clothes, but there was much fun also, and those who came in the wettest seemed to laugh the most heartily. The contestants in these games, and others, were considerately supplied with iced "switchel" (molasses and water spiced with ginger). The crowning portion of the out-door sports was a tub-race, participated in by three guests at the farm. This took place in Awassema Creek, and, like all such races, was a series of false starts and complete duckings, which, though exceedingly laughable, need not be recorded. Suffice it to say that a gentleman connected with the *American Agriculturist* is the happy possessor of a genuine tin cup, as a mark of his prowess in the tubby line. The tub-race ended the daylight amusements. In the evening there was another gathering in front of the dwelling house, where a part of the broad veranda had been enclosed to form a stage for the exhibition of shadow-pictures and tableaux, which were presented by the members of the family and visitors to an audience which included those who had taken part in the day's sports, and the neighbors. The most pathetic history of Mary Jane, and other things, were effectively shown as shadow-pictures. Songs were sung. The lady of the house read the old story of Ginevra, but ever new as told in Rogers' verse, as a prelude to a beautiful tableau picture of a bride. The appearance of one of the young ladies as the Goddess of Liberty excited much enthusiasm, which found vent in the singing of the "Star Spangled Banner" by the company. At length the "Flower of the Family" appeared with a "good night" candle, when the audience left after singing "America," and showing their appreciation by hearty parting cheers.—Here was a celebration which was enjoyed by many, brought no risk of fire, and did not cost one-twentieth of what is usually spent in fizz and bang. It was extemporized from materials at hand, and with the desire to please and readiness to be pleased on the part of all, was a real success. We give this brief account of it, that those who may next year be puzzled to know "what to do on the 4th," may profit by the hint; for such a completely successful, really pleasing, yet quite inexpensive and thoroughly harmless celebration as that at "Houghton Farm," is possible on many a farm throughout the broad land, and if not always practicable upon a single farm, a neighborhood celebration may be carried out upon the same plan.

Thinning Roots.—The yield of roots, as well as their feeding value, depends largely upon a proper thinning of the plants. Large roots are by no means worth the most. In an experimental crop, grown in England, small Swede turnips which yielded 20 tons per acre, were found to contain as much dry substance as large ones which yielded 40 tons per acre—the excess of 20 tons being wholly water. The small plants were thinned out to a few inches apart; the larger ones to 14 or 16 inches. As the thinning of root crops should be done at once, these facts are worthy of notice and consideration. When the crop is in vigorous growth, the plants should be thinned so that those remaining may have a space between them equal to their own diameter, and no more. This will prevent overgrowth, and cause the roots to be solid and well shaped.

Western Immigration.—The unexampled increase in the current of emigration westward of the present season, is remarkable. A fair idea of the extent of the movement, may be gathered from a statement of the sales of land by land grant railroads during the first four months of 1878, as compared with those for the corresponding period of 1877. Last year, the sales from January 1st to May 1st, were 26,601 acres; this year, 907,151 acres, in value nearly $4,000,000. The increase is 32½ times. In this are not included the vast number of homesteads or pre-emption entries along the routes of these roads, which far surpass in number the settlements upon purchased lands. The rush westward consists in great part of mechanics and laboring men who hope to improve their circumstances by working for themselves instead of for others, and of business men who have succumbed to the pressure of too many men in trade. It is not to be feared that the great increase in production will injuriously affect the interests of farmers elsewhere. Every car-load of produce grown in the West, or elsewhere in fact, gives work for many hands in transporting and manufacturing; it creates also a market for tools, clothes, stock, and other necessaries, which in the aggregate makes employment for thousands. Thus general industry is excited, and the increased product is needed to feed those whose labor is required to dispose of it, at home, as well as for enlarging foreign markets.

More Wheat to the Acre.

That the ten, fifteen, and even thirty bushel wheat-crops are not the largest that any good wheat-soil is capable of producing, is a fact patent to every intelligent farmer; yet thousands go on raising these comparatively unprofitable crops, even though the means is at hand for largely increasing them. It is really quite within the possibilities of any farm suitable for raising wheat at all, to grow an average crop of over 30 bushels per acre; and 40, 50, and even 60 bushels may reasonably be expected under proper culture. Such crops are rather the rule than the exception on good English wheat farms, but are quite rare in this country.

The cost of fitting the soil, of seed, sowing, interest on the land, and the number and value of the stock and implements required are the same for a small as for a large crop; and the cost of harvesting is but little more in the latter case. So that

the difference between a 10 and a 30 bushel crop is nearly all profit. But how shall this extra 20 bushels profit per acre be gained? By the use of sufficient manure, to make the increase. The fact that extra manuring makes an addition to the crop which is nearly all profit, is a fact seldom realized by farmers; but such is the case, as most will admit, after considering the above statements. The spreading of six cords of stable manure on two acres of land may not produce a crop which will more than pay the expenses of its production; put the same manure on one acre, and the chances are that just as much wheat will be harvested, and at little more than half the cost. For the generality of farmers it would be a safe rule to use what stable manure they nave on half the area it is now applied to. But to get the largest return from the farm, and to utilize every acre, is a laudable ambition of every good farmer. To do this, he cannot depend—as many do—on the natural fertility of the soil, or on stable manure; but he must resort to artificial fertilizers, which can now be bought with safety of reliable dealers, with reasonable certainty of getting what is bargained for. This piecing out of the farm and soil resources by use of honest manufactured manures is working a revolution in American agriculture; and in no department may it be better considered than in grain farming. In the use of these fertilizers, however, the same rule applies as with stable manure: that while a certain small amount per acre may only produce a crop large enough to pay expenses, half as much more may cause a handsome profit. We would not advise, however, that a novice in the use of fertilizers should go to large expense at first, but recommend small beginnings, though boldness may perhaps lead to a surprising success. When practicable, the farmer may make a good wheat manure of 300 lbs. of superphosphate of lime containing ammonia (*i. e.*, made of fresh bone), or the same amount of fine bone composted for three months; this for use on an acre. Apply also—not mixing the two—all the unleached wood-ashes that can be got. An occasional liberal dressing of lime will improve wheat land which is already rich in organic matter.

But to grow wheat at a profit, the question of fertility is not the only point to be considered. In all the older States, wheat-growing, to be successful, requires the best kind of farming. The best seed must be selected; for with poor seed, the best culture practised can not produce a good crop. The variety chosen should be both prolific and hardy. The soil, as a rule, should be a fine clay loam, well drained, and contain a fair proportion of thoroughly decomposed organic matter. The plowing should be only 6 or 7 inches deep, the soil thoroughly pulverized and compact, with all the clods on the surface; the seed drilled in early, and rolled, and the rows far enough apart to admit of several cultivations. Then, with a good season, and comparative freedom from insects and disease, and the use of proper implements in harvesting, a large and profitable crop may be expected. In the virgin soils of the extreme West, remunerative crops may perhaps still be raised by the old careless methods, but the time is close at hand when all these conditions will apply there as well as in the older sections of the country.

Beet Sugar Company of Maine.—An official circular from this Company at Portland, is evidence that something practical in the way of making beet sugar in that State is intended. The circular contains directions for cultivation, and a statement that more than 2,000 farmers have interested themselves in this enterprise. The production of a sugar-beet from which sugar can be manufactured at a profit, is still a matter of experiment. The soil and climate of any locality are important points, and success cannot be assured until these are known to be favorable. The business is one in which success depends upon the exercise of small economies, as well as skillful management—for example, the utilization of the refuse pulp is a matter of no little importance. The profit in this last item alone, has often sufficed in European factories to turn the balance towards success, and neglect of it, has resulted in a failure of the whole business.

Laundry Machinery.

At first thought, one might think that very few readers of the *American Agriculturist* would be interested in steam laundry machinery; but when it is known that this journal is taken generally at all insti-

Fig. 1.—BALDWIN'S STEAM MANGLE.

tutions, such as asylums, State institutions, boarding schools, colleges, summer hotels, etc., having farms attached to supply the large number of people at such places with fresh garden and stable products—when this fact is understood, the reason is clear. The managers of these establishments find the *American Agriculturist* of great value in their farm operations, and also in their large households. As of interest to this large class of our readers, we present an illustration of "Baldwin's Steam Mangle," (fig. 1), made by the Standard Laundry Machinery Company of Boston and New York. The advantages of such an apparatus are claimed to be, the saving of labor and fuel, and less damage to the clothing smoothed. Only those who know the

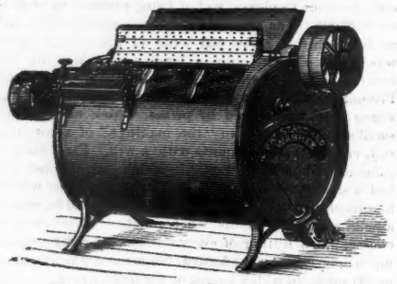


Fig. 2.—STANDARD POWER WASHER.

heat and hard work of ironing for a small family, can fully appreciate the relief that a machine like this affords when the family numbers hundreds. The same concern also manufacture steam washing-machines. Fig. 2 represents the "Standard Power Washer," used exclusively for collars and cuffs. This house also makes superior hand-mangles and washing-machines for family use.

Cow Milkers.

In the June *American Agriculturist* was published an article describing a cow milker, which operated by means of silver tubes inserted into the cow's teats, and connected with tubes of rubber. There are several milkers now offered with considerable rivalry between dealers as to the claimed merits of their respective implements, and a consequent large number of inquiries from our readers concerning them. We have so canvassed the matter as to come to the following conclusion: Several have found that, although the apparatus worked well at first, after a while it made the cow's teats sore; others find that the yield is lessened; others still use it, and have for some time, with uniformly good results, and are much pleased with the apparatus. We have seen some cows stand quietly under its working, while others were restless and dissatisfied. One of the editors of the *American Agriculturist* has had a milker in use for two months, and says of it:—"The supply of milk is steady, and there is no difference in the quantity drawn by the tubes or by hand. During the past hot weather, when the yield might be expected to fall off, it has kept up to the usual amount. There is no perceptible effect upon the teats in any way; certainly no injury has as yet occurred. But we find it necessary to give some caution as regards the use of the tubes. The membrane lining the teats is delicate, and if the tubes are not inserted with special care, the cow resists, showing that it is painful to her. By using care, however, and giving the tube a screwing motion, there seems to be no difficulty, and the cow shows no objection." On the whole, perhaps the safest conclusion for farmers generally will be, that when the milking is done by a careful, intelligent man, without prejudice against new implements, the cow milker will be a success. But when the milking is intrusted to ordinary workmen, there are strong doubts of its being of any value as a labor-saving apparatus, even if it be not a positive injury to the cows. In short, we are not prepared to recommend any of the milking appliances so far introduced, for *general use* by farmers. As to the three milkers recently placed before our readers in the advertising columns of the *American Agriculturist*, we see no special merit in any one not possessed by the others, as they are essentially the same in principle. If there is any difference, it may be that the tubes described in the June number have a smoother surface and large holes, and so reduce the friction to a minimum, while still allowing a ready flow of milk and easy cleansing.

Some English Notes.

A Great Estate.—To illustrate the grand scale on which some of the English estates are laid out, I may mention that the Chatsworth Estate of the Duke of Devonshire contains 2,000 acres, which he retains for his private park and flower garden, besides thousands more that are rented for farming. His park is bounded on all sides by hills, which cut it off from the rest of the world, and no other house than his own can be seen from the windows of his grand mansion. His flower garden alone comprises 102 acres, wherein sixty laborers are constantly employed to keep it in order. The remainder of the 2,000 acres is all in grass and woodland, and stocked with deer. A forester has charge of this part of the estate, and the understanding with him is, that he shall have at his disposal all the produce from the deer—venison, pelts, horns, etc.—on condition that he shall keep at least 2,000 head constantly in the herd. The head gardener assured me that the forester's berth is a desirable one.

The Prices of Farm Produce and meat in most parts of England seem to be substantially the same as in America. In many cases, I found them less in the cities than in country towns. The farmers here labor under a great disadvantage, inasmuch as they seldom own their land, all the farm land in England being owned by only a few thousand proprietors; and they are obliged to pay the land-owner an annual rent of from £2 to £10 ($10 to $50) per acre, including roads, hedges, and other unproductive parts, and the payment of taxes. The Duke of Devonshire has one of the largest estates in England, and rents the whole, excepting 2,000 acres contained in his Chatsworth Park, to one person, at £2 ($10) per acre, plus the taxes, the Duke being responsible for merely his income tax. Does the American farmer sufficiently appreciate his freedom from this burden?

The Seasons in England are very different from our own. For instance, at this time (June 10th), the farmers in Kent are in the midst of their hay harvest, and yet the wheat is no further advanced than that in New York on May 10, and they are now putting in their turnips. Potatoes are now in blossom, but new potatoes, from other sections, have been in the market for weeks.

English Farmers complain of an unusually wet season, and we can not doubt the justice of the complaint, for during the two weeks that we recently spent there, but one day passed without more or less rain. Many of the crops have been injured thereby, particularly the wheat, which is yellow and spindling, and the demand upon Amer-

ica for breadstuffs will no doubt be materially increased in consequence.

Hops.—Every considerable town in England has its Hop Exchange. Kent, which we have just passed through, abounds in hop-fields, admirably cultivated, which, at this season of the year, present a very attractive appearance. The poles are arranged in many different ways—some vertical, in single or double rows; some are leaned at an angle of 45°, while others are furnished with strings, extending to the ground, or from pole to pole.

Horse-beans are now (June 9th) in bloom in England, where they are raised very largely, and their peculiar blossoms, resembling those of the pea, but larger, and lined with black, have frequently attracted my attention. They are raised in rows, quite close together, and cultivated by hand. The beans are sometimes ground, sometimes fed whole, mixed with oats, and used as feed for horses. The production per acre is very large, and as they are considered very nutritious, it is to be regretted that they will not succeed in America.

The Red, or Pink, Horse-chestnut, is common throughout England, forming an attractive shade tree, and when in blossom there is none more ornamental. The horse-chestnut, probably owing to the less intense heat, attains here a greater size and better proportions than with us.

Dover, Eng., June, 1878. G. W. W. H.

American Agriculturist Experimental Farm.

The Rain-gauge in connection with the Lysimeter—described last month—showed a rainfall of 1¼ inch on June 21st. This indicates that there fell on the surface of the Lysimeter about 1¼ cubic foot of water (or exactly 1.814 cubic feet), and upon an acre 3,000 times as much (the Lysimeter surface is $\frac{1}{3000}$ of an acre), or 5,442 cubic feet, equal to about 170 tons of water upon a single acre; yet the Lysimeter showed no trace of water running through the soil. All of the water of this rainfall was held in the soil, the greater portion of it to be absorbed by the roots, and subsequently to pass off through the foliage of the grass growing on the land. This simple fact, recorded by the Rain-gauge and Lysimeter, tells more than volumes of reasoning about the immense importance of water to crops, and when the rains do not supply sufficient moisture, what material benefit irrigation may be to a field. We regret that this apparatus was not in position early enough to show how much water was used by the grass during the entire growing season.

The Amber Cane Sorghum is a failure this year on our Experimental Farm, owing, perhaps, to the extremely wet spring, and the natural moisture of the land. This crop needs a light, dry soil, and, for its best development, a warm spring. The failure, however, is just as instructive as a successful crop would have been, as it warns farmers not to attempt to grow this crop on heavy soils **without** further light, thus saving them from possible loss; and this is as much a part of the plan of the farm as to show what can be raised at a profit—"a penny saved is a penny earned." Another season's trial, however, may make a different showing, and result in changing our views of the value of the crop for such locations, as it is reported very successful in the West, on light soils, under proper treatment, and other conditions. The five acres occupied by the Amber Cane has been worked up with a Randall wheel-harrow—saving a small patch where the cane made a good growth—and fodder-corn and turnips planted, thus utilizing the fertilizer and the land, and only losing the seed and the labor expended on the Sorghum.

Hungarian grass has been planted on three acres of sod land, with different fertilizers, to test the value of the crop for our section, and its adaptability to the soil. This is now well established as a valuable fodder-crop for both cows and horses. It needs a light soil, is a very rapid grower, yields three to four tons per acre under good culture, and may be planted any time from the 1st of July to the 10th of August. It is a good second crop, and does well on sod plowed after haying. A quick acting artificial fertilizer is the best manure for the crop—say 200 lbs. of superphosphate, 150 lbs. of nitrate of soda, and 100 lbs. of high-grade muriate of potash, per acre. In our trials of this year, we hope to learn something more definite in regard to the plant-food requirements of the crop. It should be cut while still quite green, as, if left until ripe, it has some qualities injurious to animals. When the hay crop is short, this will be found an excellent substitute to fill out the lacking supply of fodder. "Hungarian grass cut green and well cured, is used by some good Vermont dairymen as a special food for butter cows, and they claim that it has the effect of giving butter the true summer yellow. It is suggested that since Hungarian so cured remains bright and green all winter, and because one of the elementary colors which goes to make green is yellow, that it is this greenness of the fodder which imparts the yellow color to the butter."

Science Applied to Farming.—XLIV.

Formulas For Fertilizers.

Formulas for fertilizers for particular crops are based upon the principle of successful agriculture, that the soil must be supplied with the plant-food that the plants take from it, or it can not produce crops. They differ in respect to the proportions of the several ingredients which they assume, (1) that the plant takes from the atmosphere, (2) that the soil can contribute from its own stores or from what it gathers from the air, and (3) that must consequently be supplied in the fertilizer. For instance, a crop of fifty bushels of corn with the stalks would take from the soil on the average:

Nitrogen	76 lbs.	Magnesia	23 lbs.
Phosphoric Acid	51 "	Lime	27 "
Potash	72 "	Sulphuric Acid	8 "

We may make our mixture so as to furnish all these six ingredients; or we may assume as the result of general experience, that nitrogen, phosphoric acid, and potash, are the only ones the soil will fail to furnish in plenty; or that, if lime and sulphuric acid are needed in addition, there will be enough in the superphosphates and other materials used, to supply them. This plan of furnishing in the fertilizer the quantities of nitrogen, phosphoric acid, and potash, found in the crop, has been adopted by various experimenters, and makers and users of fertilizers in this country and in Europe, and notably by Prof. Stockbridge, of the Massachusetts Agricultural College. Aside from the effects of climate, physical character of soil, tillage, and so on, which affect very materially the feeding of plants and the action of fertilizers, there are two

Chief Difficulties with Formulas

for special crops. The first is that they do not take into account the materials that the soil can furnish: they can not do this because soils vary in their supplies of plant-food. Some lack one ingredient, others another, and the fertilizer which covers all cases must include materials that will be superfluous for some soils. The other applies to formulas based solely on the composition of the crop: it is that they ignore what may be called

The Feeding Capacities of Different Crops.

Plants vary widely in their power to avail themselves of the materials contained in the air and soil. Leguminous crops, like clover, will, somehow or other, gather a good supply of nitrogen where cereals, such as wheat, barley, rye, and oats, would half starve for lack of it, and this in the face of the fact that leguminous plants contain a great deal of nitrogen, and cereals relatively little. Hence a heavy nitrogenous manuring may pay well for wheat and be in large part lost on clover.

This fact is most strikingly shown in the classic experiments of Messrs. Lawes and Gilbert, in England, by bringing out the details of which, in his book on Manures, just announced by the *Orange Judd Company*, Mr. Harris is rendering to the farmers of this country most excellent service. In their experiments, wheat, which has for thirty years received mineral manures alone, has averaged 16½ bushels per acre yearly, against 14 bushels unmanured. The addition of sulphate ammonia, with repeated cropping of the same land, brought the average up to 36 bushels per acre. The leguminous crops have told just the opposite story. Though they contain a good deal more nitrogen than wheat, they respond but slightly to nitrogen, and are greatly aided by mineral manures. In an experiment on the mixed herbage of grass land, continued through twenty years, mineral manures without potash brought up the total crop 47 per cent, and the nitrogen in the crop 38 lbs. per acre annually above the unmanured. And when potash was added to the mineral manures, the crop was 67 per cent larger, and contained 56 lbs. more nitrogen per acre than the unmanured. Such facts explain why it is such good farm practice to use mineral fertilizers, as plaster, bone, ashes, and potash salts, for mixed grasses and clover; and nitrogenous materials, like guano, sulphate of ammonia, and nitrate of soda, for grain crops. They help us to understand why clover is such an excellent preparatory crop for wheat, and so economical generally for plowing under to bring up poor soils. It gathers and stores plant-food, particularly nitrogen, and thus is itself a fertilizer.

The "Stockbridge Manures."

In the Annual Report of the Mass. Agricultural College for 1876, Prof. Stockbridge gives formulas for fertilizers based upon the composition of crops, and accounts of a long and laborious series of experiments made with them, on the College farm, in which the crops averaged better than the fertilizers were calculated to bring, with many other valuable details. These formulas provided for all of the nitrogen, phosphoric acid, and potash, contained in the crop. The preludes to the formulas read: "To produce 25 bushels of wheat and the natural proportion of straw per acre more than the natural yield," and so on for corn, clover, and other crops.

In such fertilizers the potash and phosphoric acid not used the first season, will be held by the soil until they are taken up by the crops that follow. But more or less of the nitrogen will probably be leached away in drainage waters, enter into inert combinations in the soil, or escape and be dissipated in the air. Nitrogen is the costliest ingredient of fertilizers. In the better articles in the markets, farmers are paying from 4 to 8 cts. per lb. for potash, from 5 to 15 cts. per lb. for phosphoric acid, and from 17 to 27 cts. per lb. for nitrogen.

Such crops as wheat, barley, rye, and oats, bring the largest returns for nitrogenous manures. But the results of experiments and of successful farm experience with fertilizers, which, like guano, phosphates and bone, contain less nitrogen, unite in making it a question whether it will pay to apply the full amount of nitrogen found in such crops as wheat, barley, rye, or oats, or even corn.

The case against the nitrogen in the clover fertilizer is still worse. When we consider how often clover thrives with mineral fertilizers alone; how, on a mineral diet, it will gather nitrogen from soil and air and store it for future use; how the great advantage of such crops to the farmer, is that, instead of consuming nitrogen which he must buy at great cost, they gather it for him for nothing; the plan of supplying so much nitrogen to clover seems poor economy. Experiments might be cited, which, like the above, illustrate the principle that the composition of a given crop is far from being a correct measure of the fertilizing materials which will most economically help its growth. At the same time it is fair that

The Other Side of the Question

should be given. And I can do this no better than in the words of Prof. Stockbridge, spoken before the Conn. State Board of Agriculture, Dec., 1876:

"I agree that some plants can gather nitrogen from natural sources, and we need not apply it. All probably gather some, and some classes of plants more than others. I hope that Prof. Atwater, myself, or somebody else, will find the law there by-and-by; when it will be, I don't know. I have had sixteen plats on trial this year, looking for that very thing. I have not found it yet; but I shall put the sixteen plats and more too after it next year, and I shall keep on until I think I have found it. There is

no mistake about the fact that clover, beans, and the legumes generally, are great gatherers of nitrogen. It is probable that wheat gathers some. And yet, in our present condition, from our present standpoint, I do not dare to risk it. I do not dare to send out a fertilizer and say that it will do so-and-so, unless I put all the things in. I agree with Prof. Atwater that there is a little loss here. I have put nitrogen for some crops that I know I need not have paid for. There is a little loss of potash, for I have put in potash for some crops that I need not have paid for. That is exactly so. But here is the point. I find it would be utterly impossible for practical farmers, taking them as we find them, going on with their ordinary system of farming, to ascertain the fact whether they need

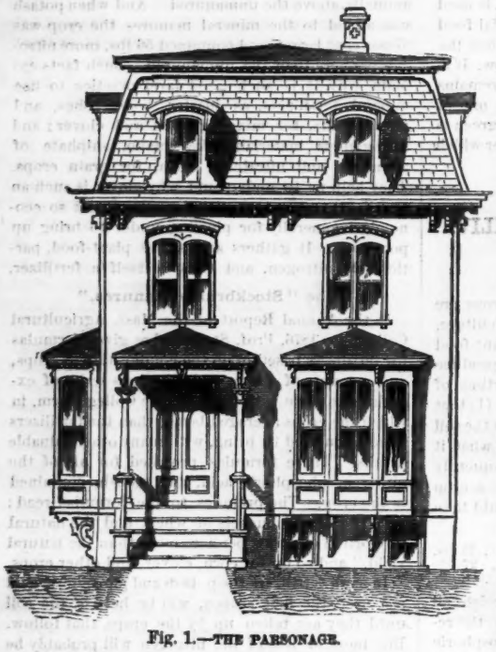


Fig. 1.—THE PARSONAGE.

potash or not. Prof. Atwater will find it out; perhaps I might find it out, but taking farmers generally, I think there would be a failure. I say that I think I know that with nitrogen, potash, and phosphoric acid, mixed in a certain way, farmers will get their crops; I do not know but they would get their crops if I left out a little potash; I do not know but they would if I left out some other thing; but as I say, I do not dare to risk it. Give me time enough, and perhaps I will run these little threads out, and find out how much nitrogen I should leave out of the corn-fertilizer, or out of the wheat fertilizer, or out of the clover fertilizer, but you must give me time. Until I learn that, I say, 'I know nitrogen, potash, and

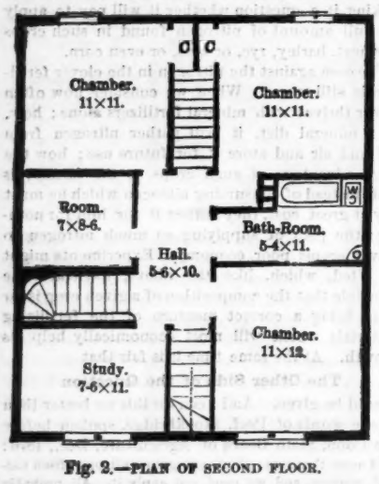


Fig. 2.—PLAN OF SECOND FLOOR.

phosphoric acid will do such-and-such things.' I do not know but I might take out a little. Until I do know, I do not dare to change my formula as a rule of general application."

I understand Prof. Stockbridge, whose position has, I believe, been misinterpreted, and whose labors the farmers of the country have not yet learned to rate at their true value, has already modified some of his formulas, a fact which accords with their lower price, and I have no doubt he will keep doing so as rapidly as he thinks safe.

W. O. ATWATER.

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A House, or a Parsonage, Costing $3,700.

BY S. B. REED, ARCHITECT, CORONA, NEW YORK.

This plan is intended for a compact and economical residence or a parsonage, containing thirteen rooms, ample halls, eleven closets, large cellar, heater, range, cold and hot water, with all the necessary modern improvements suitable for the uses of a good-sized family....**Exterior.**—The general outline is nearly square, 26 x 30 feet, which, while the most simple and economical form of construction, affords the best opportunity for a desirable distribution of rooms. The porch, bay-window, and lobby, provide projections that break up and relieve the monotony usually observed in square buildings.....**Interior.**—The interior arrangements partake very much of the character of a "double house," particularly in the upper stories. ....**Cellar.**—The cellar extends under the whole house, and contains the heater and bins for coal, etc. The heater ("portable") is arranged to provide warm air to each room in the two principal stories, except the kitchen....**First Story,** (fig. 2.)—The entrance, or reception hall, is large, and contains the principal stairway of the house, so arranged that the quarter-circle is about midway of their hight, placing the niche down where it adds greatly to the good appearance of the hall. The principal rooms, parlor and dining-room, where it is usual for the family to congregate, are spacious and accessible. Each has a large bay-window, adding to its area, and supplying a pleasant outlook. The dining-room has a large closet for china, etc., occupying the space under the main stairs. The kitchen adjoins the dining-room and the rear entrance, or lobby, and has direct communication with the cellar-stairway through a door. It is provided with a range, boiler, sink, pump, and wash-tubs, complete. The copper boiler is placed above the range in an arched recess in the chimney-breast, and is inclosed with an iron door. The lobby, or rear entrance, is arranged to connect by doors with the dining-room, kitchen, and private stairway leading to the second floor.....**Second Story,** (fig. 3.)—The stairs "land" nearly in the center of the second story. Very little space is required for the second-story hall, leaving almost this entire floor to be laid off in rooms. These rooms may all be used as chambers, or any one of them may be used as a study. Doubtless the room directly above the front entrance would be best adapted for that purpose. The door leading to this room should have ground-glass upper panels to supply light to the hall of this story....**Attic,** (fig. 4.)—The attic story is reached by the stairway, shown at the front end of the second-story hall, which has a door at the foot to shut off all communication at pleasure. This story is divided into four rooms, four closets, and hall. The hall is lighted through an opening, or skylight, in the roof, which also serves as a ventilator. The school, or play-room, is put in this part of the house, where noise is less likely to disturb the older members of the household. [To fit this house for country places or villages where there is not a reservoir supply of water, a large Tank should be provided on the 3d floor, to receive water from the roof, with a force-pump to fill it in dry seasons. This might occupy a part of the largest closet at the right of the chimney.—ED.] A work-shop, having ample space for a work-bench, wood-lathe, and other tools, is provided for in our plan on the third floor....The estimate appended indicates the general character of the work to be good and substantial. Provision is made for brick foundations, a regular timber frame, double siding, slate and tin roofs, outside blinds, panelled doors, simple and appropriate trimmings throughout, with marble mantles and stucco cornices in the principal rooms of the first story. The figures set down for the cost of windows, bays, porch, lobby,

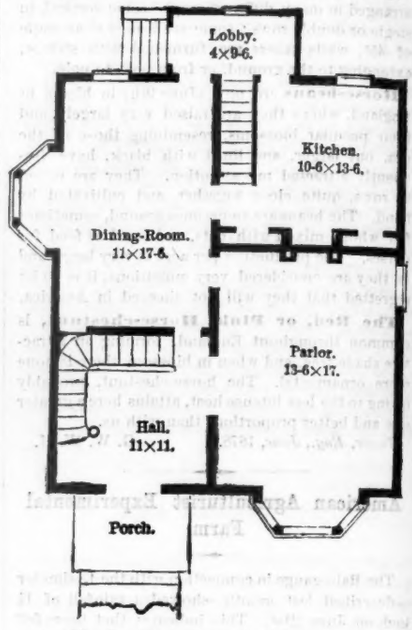


Fig. 3.—PLAN OF FIRST FLOOR.

and doors, include both materials and labor. The $300 for carpenters' labor is for the balance.

Estimate for house with Mansard roof:

75 yards excavation, at 20c. per yard		$15.00
13,000 brick, furnished and laid, at $12 per M		156.00
48 ft. stone sills, steps, and coping, at 40c. per ft.		19.20
1,000 yards three-coat plastering, at 28c. per yard		280.00
250 ft. stucco cornices, with centers		75.00
4,181 ft. of timber, at $15 per M		62.71
2 sills, 4x8 in. 26 ft. long.	2 plates, 4x6 in. 26 ft. long.	
2 sills, 4x8 in. 30 ft. long.	2 plates, 4x6 in. 30 ft. long.	
6 posts, 4x7 in. 23 ft. long.	4 deck plates, 3x8 in. 22 ft. l'g.	
1 girt, 4x8 in. 38 ft. long.	2 deck plates, 3x8 in. 30 ft. l'g.	
4 ties, 4x6 in. 26 ft. long.	8 beams, 3x8 in. 15 ft. long.	
4 ties, 4x6 in. 30 ft. long.	66 beams, 2x8 in. 15 ft. long.	
4 hips, 3x7 in. 16 ft. long.	66 beams, 2x8 in. 12 ft. long.	
100 joists, 3x4 in. 13 ft., at 2c. each		22.00
600 wall-strips, 2x4 in. 13 ft, at 11c. each		55.00
483 sheathing for sides and roofs, at 25c. each		120.75
300 lbs. tarred felt, at 5c. per lb		15.00
381 novelty siding, 6-inch, at 30c. each		114.30
112 ft. main cornice, at 60c. per ft		67.20
10 squares of slate, at 10c. per ft		100.00

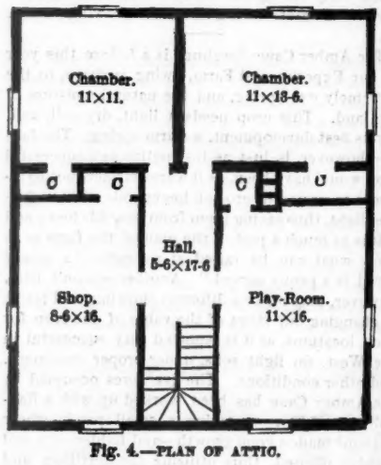
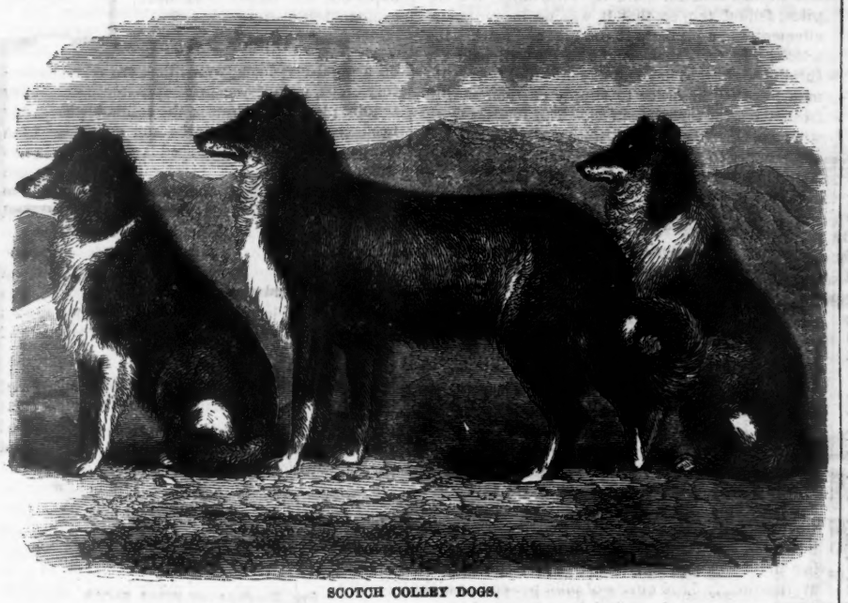


Fig. 4.—PLAN OF ATTIC.

12¼ squares of tin, at 10c. per ft	125.00
8 cellar windows, complete, at $8 each	64.00
12 plain windows, complete, at $12 each	144.00
8 dormer windows, complete, at $30 each	160.00
2 bay-windows, complete, at $60 each	120.00
1 porch, complete, $75; 1 lobby, complete, $50	125.00
390 tongued and grooved flooring, comp'l, at 28c. ea.	109.20
46 doors, complete, at $10 each	460.00
11 closets, complete, at $6 each	66.00
2 marble mantels, complete, at $25 each	50.00
1 heater, complete	200.00
Gas-pipes, $55.71; Painting, $133.90; Carting, $75.	209.61
Plumbing, including range, etc	300.00
Extras, for hardware, etc	75.00
Carpenters' labor, not included above	300.00
Total amount	$3,700.00

Shepherd Dogs.

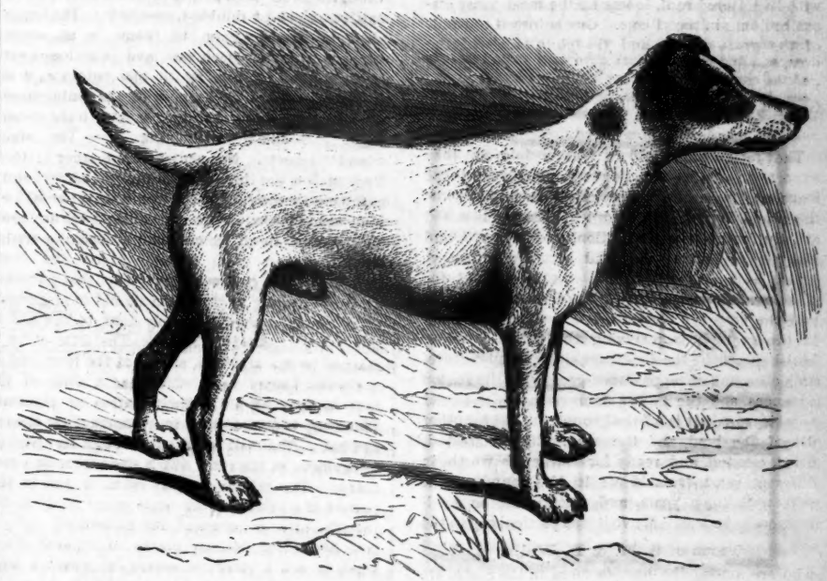
The Scotch Colley dogs are remarkable for great intelligence; an instinct which seems sometimes to surpass reason; wonderful endurance, and activity. Without these dogs, sheep-keeping in many districts, useful for no other branch of agriculture, would be impossible. The home of this breed is the Scotch highlands, a locality of rocks and hills, interspersed with grassy valleys; elevated table lands bearing scanty herbage, and "moors," or level or slightly undulating tracts covered with gorse, heather, low bushes, boggy places, and scattered rocks. Upon these hills sheep are kept in large flocks, exposed from day to day to all the vicissitudes of storms, mists, rains, and snows, with no other shelter than is afforded by the lee-side of abrupt precipices, overhanging rocks, stone walls, or in rough sheds of poles and heather. Without his dogs the shepherd would be helpless to manage his flock in this rough country. In countries where arable land bears a very high price, only such land as can not be plowed is given up to sheep pastures, and here the dog is invaluable: and not only here, for he is made useful upon the more civilized hill-sides of the Scotch low-lands; upon the grassy downs of England, the rich farms where sheep-keeping is only incident to high culture, and upon our own Western plains. Everywhere, where sheep are kept, a sheep dog of some kind is found useful; and of all the different varieties the Scotch Colley is considered the most valuable. He possesses a rare instinct for his work, which comes as a second nature to him. He often knows the ways of sheep better than his master, and understands the signals of the shepherd when far out of hearing, with great precision. Cases have been known in which the dog has discovered the absence of some laggards of the flock which his master had not missed, and has returned to the pasture for them unbidden. He can range his flock upon one side of a road, when meeting other sheep, and thus keep them from intermingling with the strangers. He will discover by his acute sense of smell sheep that have been overwhelmed in snow-drifts, and will conduct the shepherd to the place. If no help is available, he has been known to dig into the drift and release imprisoned sheep, and to warm chilled lambs by huddling close to them. He is valiant in their defence, and will give battle to a wolf without hesitation. No vagrant dog will be permitted to approach a flock of which he has charge. He will bring back stragglers when upon the march, and will return to find the sore-footed ones that have lingered by the way. For a farm dog he is of special value, as he can easily be trained to manage with gentleness any kind of live-stock. He is domestic in his habits. While kind and affectionate to his owner, and his herds, he is watchful and suspicious of strangers and strange animals. His good disposition gives him great influence over his charge, and causes them to have confidence in him. When a flock is afraid of the shepherd's dog, it shows wrong management on the part of the shepherd, and that the dog has been badly trained. The Scotch Colley has long and woolly hair; a bright mild eye; a sharp nose; an intelligent aspect; a long bushy tail, curling upwards, with the end clear of the ground; and in color is usually black and tan, variegated with a little white. The illustration pictures three dogs of this breed, owned by Francis Morris, of Philadelphia. Not the least wonderful or useful characteristic of the dog is his tenacious memory, by which he is able to remember all the turning points in a journey of hundreds of miles, and to recognize at sight every member of the flock to which he has become attached. With all his good qualifications, however, he sometimes lapses from virtue; and no other dog is so destructive in the fold as a sheep dog become demoralized by bad companions. A traitor is the worst of enemies.



SCOTCH COLLEY DOGS.

A Useful Farm Dog.

The fox-terrier is a great favorite in Great Britain, and is getting quite well known in this country as a useful dog on the farm. For unearthing foxes he is as able as a ferret after rabbits; and in killing all sorts of vermin—rabbits, woodchucks, skunks, rats, mice, squirrels, etc.—he has few equals; and next to a shepherd dog, there is none the farmer stands more in need of than one to destroy the vermin which prey upon his crops, trees and shrubbery. The fox-terrier is plucky, and brave as dog can be, facing danger and death like a true soldier. He is small, neat, and comely easy to handle, and quick to obey. The "Tartar" strain, it is said, should be avoided, as being an objectionable mixture with bull-terrier blood. A writer in an English paper, the "Country," thus describes what he claims to be the true type of the fox-terrier: "Head level, and well filled up under the eyes; long and powerful jaw, with just a suspicion of flew, rather square, decidedly not a fast taper; ears small and drooping close—this is a *sine qua non;* eyes small and expressive; deep and rather narrow chest; shoulders well set back, with elbows working as straight to side as the cocks on a double barrel; legs as straight as arrows; feet round, toes slightly arched, and not the least splayed; short body, well ribbed up; can not have too much bone or muscle; must be as cobby as possible, and should be very near a breeder's definition of what a Shorthorn should be—a brick with the corners knocked off. He should not be more than seventeen pound weight, which is imperative; and his heart should be in the right place. He should stand low, and his coat, though close, should be dense and hard. The fox-terrier, as I have found him, is pre-eminently an intelligent dog, 'at all times to our will conformable, ever in fear to kindle our dislike.'"



THE FOX-TERRIER.

Rich Soil for Roots.—A fair shaped mangel or turnip cannot be grown upon poor soil, even though freshly manured. To grow a well-shaped, dense root, without lateral fibres of great thickness, spreading like the outstretched fingers of a hand, the plant-food must be equally and thoroughly mixed with the soil, so that each fibre can reach it without travelling far. Then the nutriment is brought from all quarters to the bulb, and its growth is regular, the fine root fibres being numerous, evenly distributed, while the tap-root descends straight downward. This condition of the soil cannot be procured by the application of fresh manure, but may be by the previous application of

that which is fine, and well decomposed. However, by plentiful fertilizing with the prepared artificial manures, and by thoroughly mixing these with the soil by harrowing, a very fair crop of good roots may be grown even upon comparatively poor land. The fine condition and ready solubility of the fertilizers have an immediate effect upon the soil, and enable the plants to procure the nourishment most readily assimilated as fast as the crop requires it.

Among the Farmers.—No. 31.

BY ONE OF THEM.

Old Wethersfield

Was represented by one of the three grape-vines on the seal and coat of arms of Connecticut, encircling which, the motto "*Qui Transtulit Sustinet*," indicates the abiding faith which gave strength to the pilgrim band who settled Hartford, Windsor, and Wethersfield, planting a "Vineyard of the Lord" in the heart of the wilderness, amid privations and trials, and dangers which can not now be paralleled. The placid Connecticut then as now brought fertility to the meadows in the spring freshets; shad and salmon to the very doors of the settlers, together with the means of communicating with the outside world much more conveniently than by hewing their own way through a primeval forest 100 miles with their ox-teams and axes. Wethersfield was always a quiet restful place to me. I associate it with after-supper drives (we say after dinner now-a-days), when the great elms cast no shadows on the street or roads, and when onion-weeding was over for the day, and the girls had unbent their calloused knees, and were tripping about, enjoying the cool of the evening after their day's work in the field. The slender-spired church—"built by the women out of onions," the legend runs—is unchanged. The broad street, still elm embowered, changed but little, and not a few of the old houses are still unaltered; but change is rife even in Wethersfield. Steam-cars and whistles break the silence; horse railway cars rumble at certain hours. Even the seed-business, which for years has spread a sort of beneficent mantle over all the land, near the village, giving in a very quiet way employment to many hands—even this business now obtrudes itself upon the stranger's attention as the great seed warehouse of Wm. Megget, with its lettered roof, looms up the most conspicuous building in the village. One is forced to think of the great yellow and *fruitytuty* labels of the "Wethersfield Seed Gardens," which one meets with in every country store almost from Maine to Georgia, or even, very likely, to far-away Oregon.

Onion Seed.

They raise onions still in Wethersfield, but they export no more—the Connecticut River sloops leave no longer their odorous wakes as they plow the placid Sound. The redolent esculent is raised strictly for home consumption, and for seed, and last year I believe they had actually to import bulbs, as the home supply was insufficient for planting. Immense quantities of seed are raised, and the crop is a beautiful one in all stages—early in the ground, soon giving the peculiar tender bluish green to the fields, requiring clean culture, and changing in appearance greatly as the season advances, and the flower stems push up, and head and blossom. It is off the ground in time for other use of the land, and the seed, when harvested, dried, cleaned, and ready for market, is worth, in different years, from 15 cts. to $1 a pound. So it pays well some years, and sometimes the seed-growers net a loss.—My visit was particularly to the

Farm of S. M. & D. Wells,

who are among the best farmers in the State, are widely and favorably known as Ayrshire breeders, and raise seeds by contract or for the general market. They were large milk producers and sellers a few years ago, but now look for their profits more in the breeding of fine Ayrshire cattle than in the milk business, which was a good deal damaged by the skim-milk dealers, though to the consumers' advantage. There have been a number of "creameries" or butter factories started within a few miles of Hartford—two at least—the one at Farmington being the most famous. They sell their skimmed-milk, which during most of the year is quite sweet, to dealers who peddle it from house to house at 3 cts. a quart. The people found that this sweet skimmed-milk was quite as good as the watered milk of most milkmen, and thus the price of milk fell off greatly, and the demand for pure Ayrshire milk, at a fair price, fell off too, so that it was no longer an excitement and a pleasure to produce and market the article. In fact, men ought to be well paid for turning night into day and day into night, as milkmen have to, in order to supply customers with fresh milk for their breakfast. The Wellses work with their men, and I think were really glad of the opportunity to give up this most laborious, though frequently very profitable, branch of farming.

Their Ayrshire Herd

has long been famous throughout the country. They have been judicious and liberal buyers, and good breeders, their stock giving excellent satisfaction wherever it is distributed. I meet not unfrequently animals in high repute tracing to the "Dolleys," "Floras," and "Mysies" of their herd. They have always been good feeders, and as they have been proprietors of a valuable milk route in Hartford, it has been an object to produce the largest quantity of good milk consistent with health. I say *good* milk, for having this reputation they have usually been able to obtain a higher price for their milk than any one else, and such a reputation is worth maintaining. Some years ago, when making experiments with feed, as to the policy of steaming, etc., the yield of the herd was 9¼ quarts in winter, and 11¼ in summer, to each cow, counting dry cows and all. This makes the general average nearly 3,800 quarts of milk per cow, which is extraordinary. I think I have never visited a stable where the two objects of keeping cows, namely, making both milk and manure, were more thoroughly well done. The cows always have water before them in the stable, and are fed all they will eat, and though kept at the business of calf and milk producing so steadily, they live to old age, and are always in good condition, but not fat. Stimulants are never employed; but pure air, exercise, variety of food, cleanliness, and regularity, are, in my opinion, the reasons for their success.

Home-made Things.

Observing the plain and substantial character of a particular set of double-harness, I learned that it had been made upon the place; a thorough journeyman having been employed, the very best leather bought for him by the side, and a capital job turned out. The harness cost a little more than one apparently as good could have been bought for, and it will outlast two or three "boughten" sets. Not only is the leather of the very best, but the thread is of the first quality, and the sewing thorough. Spots where wear comes, or which are required to be particularly strong, are reinforced by inserting capping, or backing with extra pieces.

An Old Farm-Wagon

was also pointed out, as showing the value of home-made things—home-made in the right way—that is, by a first-rate mechanic working under the direction of the man who is going both to use and pay for the article. It is not necessary that this sort of work should be done upon the place. A neighboring wheelwright will do better work in his own shop than on the farm, but if a man of a little experience and common sense cuts his own timber, seasons it, tests it, selects with the mechanic what is best for spokes, felloes, boulsters, reach, etc., he is certain that no dozy or wormy pieces get in, and that with good workmanship, he will have a set of running gear that will stand some "*racket*," as they say in New England. As to this wagon, it was made some 35 years ago by the father of the Messrs. Wells, and has been in constant use ever since. Not a spoke has failed or loosened; tires, felloes, and the bottom and side-boards of the box, have been worn-out time after time, but the entire running part not exposed to wear with the box-frame, has lasted intact, and is now apparently as good as ever. I do not doubt many a parallel may be easily found, but our ways of doing things are not changing for the better. We are using the cheap, but gaily painted wagons, spongy, stretchy harness, tricked off with brass, like a brewer's rig, and other showy articles, altogether too much. These things are cheap, and in an emergency are worth the money asked for them, twice over, perhaps, but for steady hard work, and every-day use, are dear at any price.

Onions and Tobacco

on a good clay-loam, well tilled, are very satisfactory crops, even if the price does fluctuate. They require plenty of manure; the soil holds it. They need clean culture, and the soil once free from weeds stays so unless the seed is sown again. Excellent tobacco can be raised with manure enough of the right kind, on the light lands across the river, but the manure does not last in the soil, and being all derived from fields not subjected to the same clean culture required by the tobacco, the entire farm is not benefited as where rotation can be followed, and one field after another be thus enriched and tilled. Potatoes are a prominent crop, and succeed well, and great use is made of

Corn for Fodder.

The variety is Stowell's Evergreen (sweet), sowed in drills 3 feet apart, manured both broadcast and in the drills. A little is put in very early, and fed green from the time it is fit to cut, to frost, and great quantities cured for winter use. The corn is cut up with corn knives, and set up in armfuls, in good sized stooks, securely bound, and well spread out at the buts. Thus it is left until needed, or until it can be hauled in over frozen ground, when it opens out as green, flavorous, and fragrant as well-cured hay. Large crops of mangels and other roots are raised, and a system of cooking the feed of the cattle has been followed for many years. Everything is cut up by horse-power, and mixed in a steaming-box, which is of plank, with a false bottom. The box extends from the cattle-floor into the main floor above, where the fodder is cut, and is large enough to contain two or three days' feed for the whole stock of some 40 milking and breeding cows, and I don't know how many young stock.

Talks on Farm Crops.—No. 18.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

"'I have a piece of timber bottom,' writes Mr. Cobb, of Kansas, 'that I have recently cleared up, and have had it in corn for the last four years. Corn is not very profitable at 20 cts. a bushel.'"

"I am glad to hear him acknowledge that," said the Deacon. "I have long suspected that the men who figure out such handsome profits on paper from 20-cent corn, are railroad men who have land to sell and freights to carry."

"Hush, Deacon," said I, "there is as much money to be made in raising corn at 20 cents a bushel in many parts of the West, as there is in raising it here at 40 cents a bushel."

"Just about," said the Deacon, sarcastically.

"Well," said the Doctor, "it is no use grumbling at prices. They are beyond our control. All you can do is to raise good crops, and market them to the best advantage. You are not obliged to sell corn at 40 cents a bushel. I paid $1.50 for a hind-quarter of lamb the other day, and I am sure that farmers could well afford to feed out more corn to their sheep and lambs."

"That is certainly true," said I, "especially if you have the right kind of sheep. As yet, we fail to appreciate the influence which the exportation of meat to England is going to have on our agriculture. We shall feed higher. Our fattening lambs and sheep will have grain every day, summer and winter. It would be a good thing for all concerned, if we could send a million fat sheep to England next year, and two millions the year following. There is nothing in the way, except that we have not got the *fat* sheep. And yet we sell corn for 20 cents a bushel in the West, and 40 here."

"Yes," said the Doctor, "and it is almost impossible, here in the country, to get a good beefsteak. I have to pay 15 cents a pound for the wretchedest kind of beef. Why we do not get Shorthorn bulls and raise better cattle, and feed more corn, is one of the mysteries of human nature."

"Hitherto, Doctor," said I, "we have had no steady market for beef and mutton. Now that this is secured, we shall raise better cattle and sheep, and shall feed higher. But we are wandering."

"'This piece of land,' continues Mr. Cobb, 'is in fine condition and rich, and will continue to produce a good crop of corn for the next forty years without manure. It ought to produce 30 to 40 bushels of wheat per acre, if I had some good variety. What kind of wheat would be suitable to such a piece of land in Southern Kansas, that has a stiff stem, and not inclined to run to straw?

The Squire, the Deacon, Charley, and the Doctor, all said the "Clawson."

"But, nevertheless," said I, "it may not be the wheat that Mr. Cobb wants. The fact that it does well here and in Michigan does not prove that it will do well in Southern Kansas. It has stiff straw, and stands up well, but it is such a vigorous grower, that on rich bottom-land and in a southern climate it may run too much to straw. Still, I know of no variety of white wheat that I would sooner risk on such land than the Clawson. I am never very enthusiastic over new varieties of anything. We are inclined to think more of what variety of wheat to sow than about preparation of the soil."

"You should attend to both," said the Doctor, "Make the land in good condition, and then select the variety best suited to your soil and climate."

"That is it, exactly," said I, "but some farmers seem to think they can find a variety that will do well on poor, wet, weedy, half-worked land. Mr. Cobb has the right idea; he has rich land in fine condition, and is wise in looking for the best variety. But I have known a farmer send hundreds of miles for a choice variety of wheat that was advertised in the papers, and sow it on land that was too poor, and wet, and weedy, to grow a crop of rye. We need better varieties of wheat and barley, oats and corn, potatoes and root-crops; but we need still more better cultivation, better manuring, and more prompt and energetic preparation of the land."

"That is all true," said the Doctor, "but farmers are improving their land more rapidly than ever before. Artificial manures are having a decidedly beneficial effect. They put new life into the land; and, better still, new thoughts and new hopes into the farmers and farmers' boys. It is giving tone to our agriculture."

"Perhaps so," said the Deacon, "but what we want is better prices for our produce. It is no use raising crops if we cannot sell them."

"Our crops," said I, "always have sold, and always will sell. Go where you may, you will see the familiar sign, 'Cash for Wheat.' True, the price may not suit us. But those who have wheat to sell are as well off as their brethren who have flour to buy for themselves and their children. Let us be thankful that our crops are as good as they are."

"Would you put in much wheat this fall?" asked Charley. "Probably wheat will be very low."

"I should put in just as much wheat," said the Doctor, "as I could put in well—and no more. We had a great crop of wheat in this section last year, and the wheat now (June 25) on the ground is decidedly better than the average."

"Yes," said the Deacon, "and there was much more land sown to wheat last fall than for many years. It is a rare occurrence to have two such crops of wheat in succession. I think farmers will sow all the wheat they can this fall."

"But," said I, "as they made a very great effort to put in all the wheat they could last year—sowing every acre that could be got ready—I doubt very much whether they will have as much land as usual this fall to sow to wheat. At least three-fourths of all the fall wheat raised in this section is grown after barley and oats. Far less land was sown to barley and oats this spring than usual. Then, again, clover-seed was very cheap, and our wheat is seeded down with clover. It is an unusually good catch. And farmers will not be likely to sow wheat after wheat, as they are sometimes tempted to do when the clover fails."

"All of which goes to show," said the Doctor, "that the farmers have far less land ready to sow to wheat this fall than was sown last year."

"I should say, with the Doctor, if you have any land that will bring good wheat, do not hesitate to sow it. I have 33 acres in wheat this year, and 30 in barley. As soon as the barley is harvested we shall plow the land and get ready for winter wheat."

"Don't plow it but once," said the Deacon.

"That depends on the land," said I, "and to some extent on the weather. On sandy land, and especially if it is covered with a good crop of weeds, probably you are right. I would plow it once with a jointer plow, and depend on the harrows and cultivators, or gang-plows, to keep down the weeds."

"Would it not be a better plan," asked Charley, "to harrow the stubble with a heavy three-horse harrow? This would start the weed-seeds, and the scattered barley or oats. We did so one year, and I stood on a plank laid across the harrows to drive. I had to get off occasionally to clear the harrows of the stubble and weeds, but it did good in starting the weeds and scattered grain."

"That is so," said I, "and if the new Peruvian Government Agency will sell us nitrate of soda at such prices as we can afford to pay, I should like to dress all my wheat land this fall with 200 lbs. of mineral superphosphate and 150 lbs. of nitrate of soda, per acre; with another 100 lbs. of nitrate of soda sown as a top-dressing in spring, I should expect great wheat. On rich, strong, loamy soils, artificial manures are not so necessary; but it will cost more to get the land ready for the wheat. But I think it is probable that we shall have good wheat on these clay-spots, and good clover afterwards. And so, while it is considerable trouble to get such land into a thoroughly mellow condition, it pays wonderfully well to do it—especially as the land is there and will have to be sown whether we will or no. You want a three-horse plow with a *good point*. And as soon as the land is plowed, *roll it*. If the roller does not break or press down all the clods, harrow, and roll again. Do not leave a clod bigger than a hen's egg on the surface. Harrow and roll until the surface is smooth. This will check evaporation, and the clods that are pressed into the loose, mellow earth will absorb moisture, and become so soft that the cultivator or harrow will make some impression on them. But I would not depend on this alone. Before sowing the wheat I would plow again. If the first plowing was well done, and if the roller and harrows have been used sufficiently, this will turn under four or five inches of moist, mellow soil."

"That is what I object to," said the Deacon. "Why not keep it on top?"

"The plow," said I, "will turn under this mellow soil, and bring up two or three inches of hard, cloddy soil. Roll and harrow, and drill in the wheat deep enough for the seed to reach the moist earth underneath. The drill will pull up some of the clods and leave the surface rough—but this is no objection. I would rather have the clods on top and the mellow soil beneath, rather than the clods underneath and the mellow soil on top. But I am aware that there are two sides to this question. The Deacon and I have a standing quarrel on the point. A good deal depends on circumstances."

The Use of a Roller.—The proper office of the roller is to reduce a cloddy soil to a fine condition, and not to produce a smooth level surface. Rolling may smooth the surface, but it can not make it any more level than it was previously, except to get rid of the small furrows left by the harrow or the drill, which are of service, and should not be obliterated. Rolling is useful when the soil is full of clods, which prevent the proper covering of the seed and the even sprouting of the grain. It is injurious when it compacts the surface and causes it to bake and crust over, by which the soil dries rapidly and receives moisture slowly, or not at all. Then the dew is not absorbed, the atmosphere can not enter to carry moisture into the ground; rains run off from the surface, washing it and carrying off fertilizers or grass-seed, either altogether or into bunches, by which the plants are caused to come up unevenly. A good use of the roller is upon meadows in spring to smooth the surface for the mower, but at the present season, when fields are about to be prepared for fall grain, farmers may well consider how the roller may be used and misused.

Grades as Milkers.

BY PROF. LEVI STOCKBRIDGE.

A recent writer suggests two very important questions, the facts in relation to which, and the principles controlling the case, should be well understood by all dairymen and breeders of dairy stock. His query is, Do heifers, from native or scrub mothers by bulls of thoroughbred milking stock, make better milkers than their dams; and if so, why? Why take the qualities of the stock from the sire, rather than the dam? It is an indisputable fact that many native cows are superior milkers and butter-makers, and this quality is transmitted to their daughters in some cases, until a family exists of local celebrity. This characteristic, however, has generally been lost in the course of three or four generations, for want of care in keeping up the regular line, or by the yearly infusion of blood of base or unknown quality. It is quite possible that remarkable milking qualities in an individual native cow might be perpetuated to remote descendants, and even increased, by careful selection of the sire, and in-and-in breeding. But that is the method by which thoroughbreds are produced, and requires skill and intelligence of a high order, and years of observation and labor. With a good native cow as the basis or stock, much anxiety and time may be saved, by an immediate infusion of the fixed blood of a thoroughbred of the desired type, and the result will always answer the first query in the affirmative. The calf will be better than its dam, in some respects, and worse in none. As an accident or sport, it is possible the dam might be a better milker than the dam or breed of the sire, and the calf taking the type of the sire be inferior to her, but the rule taught by experience is the other way. In this case the characteristics of the offspring are determined by the long-known law, that the longer a class of animals is developed in a single line, the greater is their transmitting power, with the more certainty do they impress their qualities on offspring. The blood of the dam having no line of descent, and no accumulated force, is overborne by the thoroughbred sire. Theoretically the progeny of such a connection is more than half-thoroughbred, and should develop more than half of the sire's stock qualities in milk and form. There is but little danger of reversion to original form if this method of breeding be adhered to; but even if there were, it is undoubtedly the cheapest, quickest, and surest way to develop fixed milking qualities from native cows.

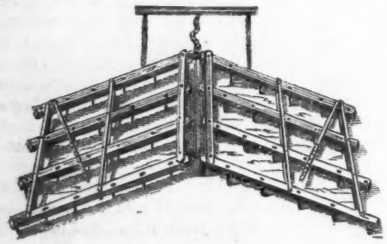
[Upon a great majority of the old farms of New England, and the Middle States, cows have been used for milk, and neglecting almost every other quality, *bred* for milk for many generations. They are well-bred in no other particular, but not a few of them are in this. When such cows are crossed with a bull of any of the established breeds, is it surprising that even a grade Hereford proves a grand milker? That Shorthorn grades, even by sires of families bred rather for beef than for milk, should prove great milkers would be looked for from the fame of their dams and from their own superior form and higher grade as animals. That Ayrshire grades from such a cross should give much milk, and Jersey grades rich milk, we look for as a matter of course.—ED.]

Weeds.—The worst thing about weeds, is, that the farm of the good cultivator is often stocked with them from the highways and the fence rows or farms of his neighbors. The law in most places provides a remedy and enforces a penalty upon careless or neglectful farmers; but the good farmer is generally a good neighbor, and is greatly disin-

clined to protect himself by law, and so he suffers without complaint. But there is an unwritten law which exists amongst men, which should impel every one to use his own property so that it may not be made a source of injury to that of others. Every farmer should be made aware of the damage that arises from weeds, the waste of labor that is caused in eradicating them, and the robbery of the soil by their support. If every farmer fully appreciated this, there would soon be a crusade against the whole army of weeds.

A Harrow for All Work.

S. H., Griggsville, Illinois, sends a description of a good harrow. It is made in two parts or wings, each of which consists of four bars connected with



A HANDY HARROW.

three cross-ties, the two outer ones having strips of light bar-iron beneath them and under the bars; and as the bolts pass through these, it gives great strength to the implement, notwithstanding its lightness. Upon each wing there is an adjusting bar, furnished with a number of holes, which operates as a brace to spread the harrow as desired. The teeth may be made to stand upright or to slope backwards, as the builder wishes. By using the sloping teeth, the harrow may be used to clean wheat fields in the spring, or to harrow young corn or potatoes, as is frequently done. A light harrow of this kind, furnished with both upright and sloping teeth, may be made to do varied work, and will be found a very desirable implement.

Slatted Floors for Cow-Stables.

The greatest difficulty experienced in the management of a dairy is to provide an effective method of

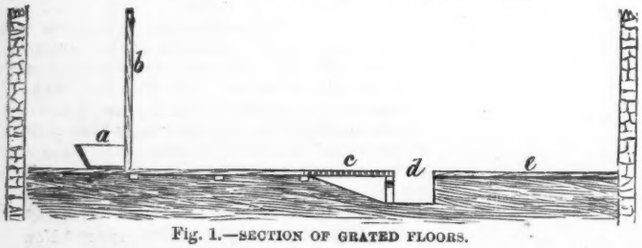


Fig. 1.—SECTION OF GRATED FLOORS.

keeping the cows clean. Stalls provided with stanchions, and gutters in the rear to catch the droppings, is probably the best method at present used in dairies; but an improvement upon this may easily be made by using slatted or grated floors. These have long been used in English stables, and have been introduced in this country by at least one enterprising farmer. Mr. E. W. Stewart, of Buffalo, N. Y., has provided his stables with a floor of this kind, and has found it very effective in keeping his cows cleanly, and in saving labor. His method is very similar to that in use by the well known English farmer, Mr. Mechi, who speaks very highly of the system, and considers the cost to be abundantly repaid in the lessened labor and improved condition of the cows. The cost for this improvement, complete in every respect, need not be over $6 per cow, or but $120 for 20 cows. The arrangement of the floor of the stable may be as shown at figure 1. The feed passage is at *a*; the stanchions at *b*; the grated floor at *c*; the manure gutter at *d*; and the drive-way for a wagon or cart to remove the manure at *e*. The grating is shown at figure 2, and is made of iron bars 1¼-inch wide and three-eighths of an inch thick. The cross-bars are placed with the edges up and down, about one inch or one inch and a half apart, and are riveted to the end bars. The gratings are 12 to 18 inches

Fig. 2.—THE GRATING.

wide, and may be made of such lengths as will answer for one or more cows. They will answer either for stalls or an open floor with stanchions. Rings or eyes are riveted on to the front bars by which the gratings may be hinged by staples to the timber in the solid floor. The front part of the floor is made of plank or concrete, or may be of earth; but there must be a timber bedded in the floor in either of the last cases, to which the gratings are hinged, so that they can be lifted up for the purpose of cleaning out the gutters when necessary. The form of the gratings is shown at figure 2. The rear portion rests upon wooden posts, stone blocks, or angle-iron pillars, as shown at figure 3. The latter is, perhaps, the best arrangement, although square stone blocks bedded in the cement of the gutter are durable and cheap. If the iron posts are used, they should be set in a beam of wood, bedded in the cement. The floor beneath the gratings may be sloped (fig. 1) down to the open gutter; which will tend to bring the manure down to the opening, and facilitate the cleaning out. The plan of the floor is shown at figure 4; the reference letters being the same as in figure 1. This floor will be found very cleanly; the droppings which fall upon the gratings pass through them into the gutter; any which

Fig. 3.—CROSS-SECTION OF GRATED FLOOR.

may remain upon the bars is forced through by being trampled upon, and the cows' feet are cleaned by the action of the bars. No bedding is necessary upon this floor, and this expense is saved. This is an important item in towns and cities, where litter is very costly; and is, at least, worth considering where straw is plentiful, because the straw may be wholly used for fodder. Some dry earth, or swamp-muck, should be thrown into the gutter to absorb the liquid, and a daily dusting of finely-ground gypsum will prevent any odor from the stable. If the liquid manure is to be preserved separately, the gutter may be made to discharge into a cistern, and if the gutters and floors are washed down with water every day or two, a large supply of liquid manure could be secured. One of the Blunt Universal pumps, which is both a suction and force pump, attached to a cistern and furnished with a hose and nozzle, will be found very convenient for this purpose. The passage behind the gutter—when the room can be spared—should

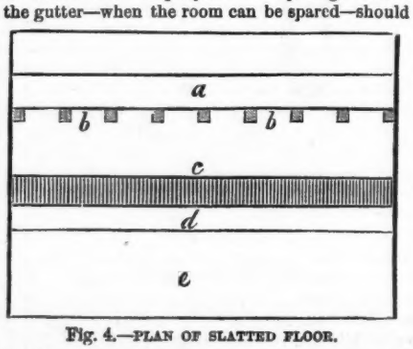
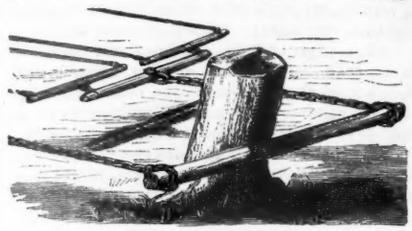


Fig. 4.—PLAN OF SLATTED FLOOR.

be wide enough to permit a wagon or cart to be driven through for the removal of the manure; in which event, there should be doors made for the purpose.

A Method of Pulling Stumps.

A correspondent sends us a sketch of his method of pulling stumps or rocks, which may also be made useful in loading heavy logs, roots, or stones. The apparatus consists of a long stout pole, which serves as a lever; to one end of it is attached a chain con-

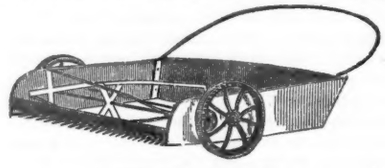


A CHEAP STUMP PULLER.

necting with the stump to be moved; to the other end the draft chain is made fast, a tree or stump being made use of as a fulcrum.

Gathering Clover Seed.

It is seldom that clover straw can be made useful after the seed has been hulled, so that it is a saving of labor, to cut it as high as possible, taking only the heads. By using the scythe, or cradle, this cannot be done; and it will be found much better to use a mowing machine, having a table attached to the cutter bar, or a clover-seed gatherer made expressly for this work. The former method is a convenient one, but it is only a makeshift after all. It consists in attaching to the cutter bar, a light frame of hickory slats, made somewhat like a set of cradle teeth, so that it will slide easily over the ground. A stout cloth is spread tightly over the frame, upon which the clover heads may be gathered as they are cut. A machine, of which the cutter bar can be raised several inches, if neccessary, is preferable for this work. Then the clover heads only need be cut. As they are cut, they are raked back on to the cloth, until it is full, when the load is drawn off, and left in a heap to dry. The rake should be a sort of scraper, as teeth are unnecessary. A broad lath as long as the cutter bar attached



CLOVER-SEED GATHERER.

to the rod, is the best tool. A machine for gathering clover-seed is shown in the accompanying illustration. It is automatic, and does its own clearing of the teeth, by means of a revolving scraper, which is operated by the carrying wheels. The machine is guided by the curved bar behind, and drawn by one horse. The management of the clover seed crop is very simple. It is improved by frequent wetting and drying, as then the seed is more easily hulled, than when it is cured in dry weather. If the weather should be dry, it is best to rake the straw, or the heads, into small heaps, letting them heat moderately; afterwards spreading the heaps in the sun to dry. The raking may be done while still wet with dew, which will assist the fermentation, and heating, which partly rots the hulls, and helps the cleaning. The crop, when perfectly dry, after two or three weeks' exposure to the weather, should be stored in a corner of the barn.

The Pea-Fowl.

Although the pea-fowl is well known as a bird of fine feathers, few persons are acquainted with its natural history and real merits. It is a good table fowl, and as easily reared as the turkey, still it is rarely seen upon the farm or country place, and then only as an ornament. This bird is a native of

Asia, from whence have come nearly all our gallinaceous fowls, the turkey excepted. In the time of Solomon, it was an article of merchandise, and was brought with ivory and apes from Tarshish to Judea. One species of Pea-fowl was found by an English traveller, Colonel Sykes, abounding in a part of India, where large flocks were kept about the native temples. Another Eastern traveller relates that from 1,200 to 1,500 were seen by him in passes of the mountain, within sight at one time; and he speaks in extravagant terms of the brilliance of their plumage. There are three distinct genera, which include several species and varieties, such as: the Crested, the Black-shouldered, the Javan, the Japan, the Iris, the Thibet, the Malay, etc. All the domesticated sorts are surpassed by the wild ones in beauty. Cuvier says of the Pea-fowl: "We find in its incomparable robe, united, all the brilliant colors which we admire separately in other birds; we find all that glistens in the rainbow, that sparkles in the mine, the azure and golden tints of

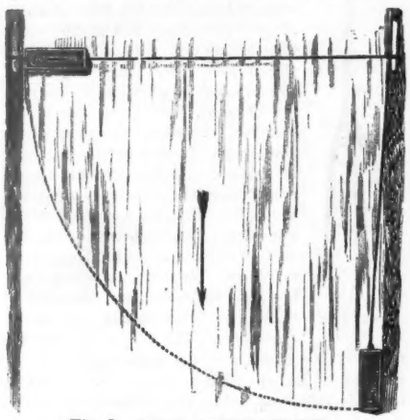


Fig. 2.—FERRY AT HIGH WATER.

the heavens, and the emerald of the field." White, the naturalist, found that the feathers of the train do not belong to the tail, but that they grow upon the back, the real tail feathers being short, stiff, and brown, about six inches long, and serve as a prop to support the immense train. By a peculiar muscular action, the long train feathers can be erected and spread, and their shafts made to strike together, and produce a clattering noise. The Pied peacock is white upon the wings, belly, and breast; the rest of the plumage is as showy as in the other species. Pure white birds are very rare, and highly valued, but from the absence of the gorgeous coloring of the common kinds, they suffer greatly in contrast with the latter. It is not until the second year that the difference between the sexes becomes apparent. This bird lives from 20 to 25 years, and reaches maturity slowly. The third year the train of the cock becomes developed, and it is only when it exhibits its full coloring that he is ready to be mated with three or four hens.

The pea-hen lays her eggs on alternate days, and when she has produced five or six, she will incubate, unless the eggs have been removed. She makes her nest upon the ground, in a secluded place, beneath the shelter of low bushes, long grass, or weeds. The maternal instinct is well-developed in some hens: in others it is so lacking that they even destroy their own young, or leave them to perish from neglect. The period of incubation is from 27 to 29 days. The pea-fowls have strong local attachments, and they rarely leave the place where they have been reared and fed. They are sensible of kind treatment, and will become very tame when gently used and petted. They have a habit of roosting high, and will choose an elevated place on the top of the highest tree or buildings to which they can gain access. When but three days old, the chicks are able to reach a roost two or three feet high; and if they can mount from one step to another, they will follow the old birds to their highest roosting places. The birds are naturally shy, and their treatment must be regulated accordingly. The proper feed for the young pea-chicks consists of hard boiled eggs, cracked wheat, coarse oat-meal, and bread-crumbs; and they will soon hunt after and consume insects and worms of all kinds. It is necessary to protect the young birds from wet and cold, and they require the same care which is needed for young turkeys.

A Small Ferry-boat.

We have a number of inquiries for a method of crossing rivers by means of a boat that can be

Fig. 1.—THE FERRY-BOAT.

drawn from one bank to the other by a rope. We suggest the following plan:—Set a post firmly in each bank of the river, and attach a rope to each post. Make a skiff, or scow, such as would be convenient, and attach a ring-bolt at each end, on one side, and have a winch with a grooved wheel at the middle, as shown at figure 1. The rope may be made to take one turn around this wheel, and by working the winch the boat will be easily drawn from side to side. When the current is swift during high water, and there would be a strong side pressure upon the boat, the following plan can be pursued, by which much hard work may be avoided. Two ropes should be provided, one fastened to each end of the skiff, and each fastened to the post upon either bank. When the stream is to be crossed, the forward rope is pulled until the boat is in the current, when it is made fast, while the other rope is left to run out as it may. The boat is, of course, carried down stream in a direction across the river until it reaches the opposite bank; when out of the strong current, it may be hauled up to the post and made fast. In returning, the same method is pursued.

An Egg Tester.

The accompanying engraving represents a contrivance for testing the freshness or fertility of eggs, useful in the household or to the poultry-fancier. It consists of a small handle, with a cup attached to it; around the cup is fastened a frame of sheet-tin, or stiff card-board. This frame has a hole in the center, of the shape and size of an egg, and a strip of black ribbon, or cloth, is fastened around the frame, projecting a little beyond the inner edge. To test the egg, it is placed in the cup, so as to fill the space in the center of the frame, the edge of the black cloth or ribbon fitting close to the shell. When the egg is held close to a bright light, the light passes partly through the egg, and shows a fresh or infertile one to be perfectly clear, while a fertile one that has been incubated two days will show the embryo, as in the engraving. Infertile eggs may then be taken from the nest.

EGG TESTER.

A Cheap Pig-Pen.

In response to inquiries, we present a plan of a convenient pig-pen that will cost less than $25, exclusive of labor. Nine posts of cedar or chestnut are set in the ground one foot, and projecting as far above the surface; arranged as in figure 1. Sills of 4 x 4-in. are laid upon the posts, with a cross sill in the center, and halved together at the joints. No wall posts are used, the stout boarding being made to serve the purpose. The structure is 8 feet each way, or can be altered to suit the ordinary length of boards when built. To put up the walls begin at the bottom, fastening on the corner boards first and nailing their edges firmly together. Strips of 2 x 4 serve as plates. Floor beams of 2 x 6-in. are laid upon the sills, 16 inches apart, and the floor upon these. For a roof, rafters of 2 x 4-in. stuff are placed 4 feet apart, upon which three 12-inch boards are laid, one at the peak, one at the eaves, and one between these two. The roof boards proper, 8 feet long, are put on lengthwise of the rafters, and battened. Spaces for the doors and windows should be left or cut in the boards as they are nailed on. There should be two small windows, placed as thought most desirable.

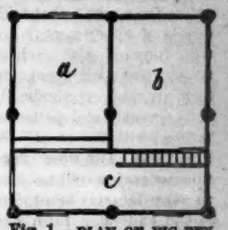


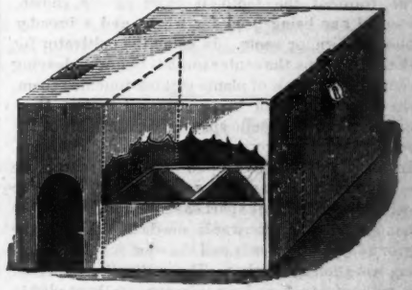
Fig. 1.—PLAN OF PIG-PEN.

Fig. 2.—VIEW OF PIG-PEN.

The interior division should be as shown at figure 1. The feeding place is at *a*, in which is a trough, with a sloping board in the passage, *c*, by which to pour in the slop. A sleeping-room is at *b*; the partitions of which should be 4 feet high. A few loose boards will be required for a floor in the loft to make a space for stowing corn for feed. The building is raised one foot from the ground for the sake of avoiding rats and other vermin. A sloping gangway leads to the yard; into which it is also convenient to have a gate from outside.

A Lock-up Nest Box.

It frequently happens that a nest box that will lock up is desired. Such a box may be made 3 feet square and 18 inches deep, which will be large enough for two nests. The door is at *a*. At *b* is a partition extending half through the box, and at the inside of this are two nests about 8 inches deep,



A SECURE NEST BOX.

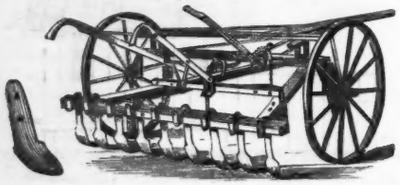
16 inches long, and 12 inches wide. These are seen through the side of the box, which is partly removed for this purpose. For small breeds of poultry, the box may be made considerably smaller. Such a retired nest as this exactly meets the instincts of the hen, and it becomes very acceptable to her.

Farm Experiments.—There has never been so much experimenting by farmers as there is the present year. Great facilities for this kind of investigation have been given of late, and the tone of

the agricultural press has been such as to awaken an active spirit of inquiry in this direction. It is to be feared that some disappointment may occur by reason of unexpected failures to reach satisfactory results. Now, in experimenting, there is nothing so needful as patience. One year is far too short a time for a result that will be of any value. The results of experiments are useless, except as they are compared with each other, and it is of little avail to make trials and tests, of this or that, unless they are made methodically, and with great care, perseverance, and patience; and above all things besides, with the most accurate noting of all the conditions as to time, place, season, and other circumstances, as well as of the results. There can be no more valuable labor if properly carried through to the end than farm experiments, but if they should be abandoned after the first year, because the result may not be what was expected, they had better not have been begun.

Cultivator for Small Grains.

It is a well-known fact, that the cultivation and weeding of the wheat crop, largely adds to the yield. It is a usual custom upon the fertile English farms,



A GRAIN CULTIVATOR.

not only to hoe the wheat, but to pull every weed by hand that is not destroyed by the hoe. In this country hand labor is too costly to admit us to do this, but the necessity for it is so apparent, that farmers would at once adopt it if practicable means were provided. A very promising and quite effective machine for this purpose has been invented by Mr. A. B. Travis, of Mich., with which the writer has had an opportunity of experimenting. It is intended for the cultivation of any crop sown, or planted in drills, and we have tried it upon wheat, corn, and mangels. It is drawn by two horses, and it carries a row of teeth fastened to a frame which is loosely suspended to the axle so that it can be made to oscillate sidewise several inches. This renders it easy to follow the irregularities of the drills, and to avoid interfering with the plants in the rows. The teeth, shown in the engraving, are intended for working in small grains, wheat, rye, oats, or barley, and they can be moved to a less or greater distance apart, as desired. On the left of the illustration the form of the teeth is more clearly shown, a small one being used for wheat, and a broader one for corn, or roots. In using the cultivator for the latter crops, the center tooth is removed, leaving room to pass a row of plants without touching them, the remaining teeth being adjusted to very thoroughly clean the whole space upon each side of the row. Thus two rows are cleaned at each passage. In using this machine upon corn, this season, we cultivated the rows in two directions, the crop being planted 3½ feet apart each way; and very little hand work was afterwards needed, although the ground was very weedy and the weather after planting was unusually rainy. The cultivation of wheat is, without doubt, an improvement greatly needed in our present practice. We need very much to make this crop more profitable. The present average is far too small. Instead of 10 or 15 bushels, it should average 25, and the best crops ought to reach 60 bushels in place of 40. With proper manuring, and freedom from weeds, we can reach the latter yield upon drained soils. If we could hoe the wheat, we might hope for an increase of 50 per cent in the yield, where the soil is sufficiently fertilized. If others do it, why should not we as well? We think we may reasonably look for success, and expect soon to have a wheat horse-hoe that will be cheap, effective, and that may also be used on the corn and root crops, at least in their earlier stages, leaving the later operations to be performed by the plow.

Tethering Cows.

In pasturing a flock of sheep, or a herd of cows, upon a heavy growth of fodder, of whatever kind, the whole field will be traversed the first day, and a considerable portion be greatly damaged; but by confining the sheep within hurdles, or by tethering cows, the rest of the field is neither trampled nor soiled, and nothing is wasted. The herbage is consumed only within the limits of the tether, the remainder is left to grow until required, and the portion pastured soon regains a fresh growth, and is evenly manured at the same time. By tethering, we acquire all the advantages of a system of soiling, without the labor of cutting and carting of fodder, and of hauling the manure made in the yards—that is, if the droppings are evenly spread over the field, as they should be, and not permitted to remain in patches. By the use of the tether-pin illustrated below, cows can be confined within proper limits without risk of winding up the chain on the pin. The swivel-ring upon the top turns as the chain is drawn around, and as the head is pressed down close to the ground, there is nothing upon which the chain can wind. In using the tether, it is a good plan to advance the pin each time to a sufficient distance in a direct line, thus feeding off a strip through the field or plot of ground. When such a strip has been eaten down, begin again next to the first starting point. In this way the grass is eaten off regularly, and when the field has been all fed off, it may be gone over again. Where a number of cows are tethered out, they may be ranged in a line, and made to advance regularly through the field. If the herbage is dense and tall, a half circle of twenty feet radius would be nearly sufficient for a cow for one day, so that the pin may be advanced the length of a twenty-foot chain, only, each day. A very near estimate may be made as follows: A crop that will produce 1½ tons of hay will cut six tons of green grass, which is equal to about a quarter of a pound to a square foot. A cow will consume 80 lbs. of fresh grass per day; hence, 240 square ft. should supply a cow with one day's fodder, which is equal to a space of 20 ft. long by 12 wide. In this way the space fed off may be accurately apportioned. If the grass is about half grown, twice 240 square feet would have to be allowed, in which case the pin should be moved ahead at noon each day, and so of other yields.

TETHERING-PIN.

A Wooden Stable-Fork.

The writer has recently seen and used a stable-fork made of wood. For use in arranging litter about horses and cows, and in lifting fodder, whether whole or cut into chaff, it is very convenient. As the points are not sharp, the danger to man and beast, incident to the steel fork, is avoided, and it is much lighter to handle than a steel fork. The engraving given in the next column sufficiently describes the implement.

Our Foreign Markets.—The extraordinary increase in our foreign exports, chiefly of Agricultural produce, by which the balance of trade has been made to fall in our favor to the extent of more than $250,000,000 during the past year, has had a very beneficial effect upon business. It has prevented the export of gold, and has greatly helped to keep up prices. It has been this foreign demand which has eased the provision market, greatly depressed by a production of meat, much in advance of that of any previous year. Fortunately we have been able to open new outlets for our products, and these once gained, will be likely to become permanent. Heretofore, Great Britian has been the chief customer for our grain, meats, and cattle, but recently a live cattle trade has been opened with Germany, and shipments of beef, pork, and mutton, have been made to France. The consumption of meat is rapidly increasing and outstripping the production in France. There is no other source of supply for that country more convenient than the United States, and the probability is, that we shall be able to secure the greater part of it. For the last three years, France has increased its imports of provisions to the extent of over $30,000,000 annually, taking $207,600,000 worth in 1877. Her imports of cattle for the first three months of the present year, exceeded in value $7,200,000; the number of animals being over 400,000; of which 315,000 were sheep, and 49,000 swine; thus in one year that country needs to purchase a very large number of live animals, in addition to the supply of meat, both fresh and cured, and fish. To secure this market it is necessary to furnish desirable grades of animals. At the present, we are most deficient in our supply of mutton sheep, in which respect we are slowly improving, but it is essential that we lose no time in raising the character of our live stock, so that we may be able to meet the demands of those who will willingly become our customers. The bulk of this foreign trade in live animals would naturally fall to the share of the Eastern parts of the country, which are near the shipping ports. No other section needs more the good effect which feeding stock must produce upon its system of agriculture than does this; and none can make the business more profitable.

MANURE FORK.

Country Parsons.

In former times the English country parson was the best farmer in his parish, and set the example in the use of improved implements and methods of practice. He was looked up to as a guide in temporal things as well as spiritual; and his care of the material interests of his flock gave him better knowledge of their moral wants. To-day, the farming parson has largely given place to the pale-faced dispeptic who shuts himself among his books, and knows and cares little for the every-day affairs of his people; but specimens of the old stock are still found in rural England, and the name of a rector or vicar is often seen in their agricultural papers, signed to able writings on theory and practice. In America the farming parson is a scarce personage, though examples are not wanting. The author of the genial "Tim Bunker Papers" is an excellent farmer, as well as pastor, and is held as a safe authority by his neighbors in things agricultural. Even Mr. Beecher wrote a book on gardening, and if his lot had been cast in a country town, he would have been a great agriculturist. A score of such might be cited; but many readers will have some public-spirited, wide-awake village minister whom they would set up as an example to their own spiritual directors.

We need more farming parsons. The country clergyman, if he would exercise the greatest influence among the people, must take more interest in their crops and herds; *he must have crops and herds of his own.* His mental training should fit him to be a good observer of nature, and of methods of practice. His opportunities for study of books and papers should enable him to keep posted on all the progressive ideas and methods of the day. The farmer needs all the precept and example—particularly *example*—in good agriculture that he can get. The country clergyman has such influence that he *may* do agriculture an incalculable amount of good; and if he will mingle more of nature and everyday

life in his Sunday sermons, he is sure to make them more acceptable and effective, than when all composed of the text, precept, and theory of books.

If not satisfied with the examples of success in this line among his acquaintances, let the parson turn to his beloved tradition. Even the Head of the Christian Church taught by practical labor as well as by oral moral precept. The monks of the middle ages were the preservers of the best of agriculture of the earlier times for those who came after the dark ages had passed; in them was possessed all the farm lore of that day. And history tells us that for long years thereafter the clergy were the pioneers in agricultural progress. The spirit and thought of the people, and the needs of the calling for men of thought engaged in its work, open to the country minister an inviting field, and a promising harvest of increased influence.

How to Kill Quack Grass.

The writer has been engaged for two summers in eradicating this pest from fields of corn and potatoes, and the ground, until recently, was apparently as full of roots as when the work was begun. Ordinary cultivation does not seem to have any effect on it. We give in next column an illustration of the plant, by which it may be readily recognized. It will be observed that the grass has a long-running root-stalk, with roots springing from it at very short intervals. Buds, one of which is seen at *a*, start from the root-stalk, so that if it be cut into small pieces, each bud will send up a shoot, and form a plant, which in turn will spread in the same manner. The spike (seen at the right) has its spikelets arranged as in wheat (*Triticum vulgare*), with the flat side towards the stem. Its manner of growth renders special treatment necessary to destroy it. Two methods may be used, in conjunction or separately: one is to employ a cultivator with teeth, made as in fig. 2, having an edge of steel that can be ground sharp. This should be run about an inch deep, when it will cut off every shoot, leaving the root intact. If this is done frequently through the season, our experience is that the roots die in time, their vitality being exhausted in the effort to throw up new buds. The other is to use a cultivator, or grubber, with teeth similar to those shown on page 256 (July), fig. 6. This tears out the roots, when they may be gathered and burned. It is not safe to throw them aside, as they will sprout after the first rain, and send out new roots into the ground.

Fig. 2. CULTIVATOR TOOTH.

Village Improvement.

BY E. W. B. CANNING.

The Laurel Hill Association, of Stockbridge, Berkshire Co., Mass.

This Association had its beginning in the year 1853, and was set on foot entirely by the efforts of one devoted lady—now Mrs. J. Z. Goodrich—whose personal and untiring labors to arouse the people resulted in an organization which has not only secured to the town incalculable benefits, but has become the inspirer and the model of similar associations in other States. [An account of a more recent effort of this kind was given in February.]

After a thorough canvass of all portions of the town, by way of preparation, a meeting was held in August, which proved an enthusiastic success. Besides its own citizens, many sons of the town, settled elsewhere, were present, or responded by the proxy of a liberal subscription. All the preliminaries of a regular organization under the General Statutes of the State, were transacted. By its constitution membership was obtainable by an adult on the payment of $1, and of 25 cents by a child, or, on the part of the latter, by the planting of a tree under direction; and every child was encouraged by this means to erect a memorial of him or herself, to bear thereafter the name of the planter.

A remarkable knoll, where magnificent rocks are overhung by a forestry of oaks and pines, was purchased some years previously and presented to the village as a pleasure ground, by a public-spirited citizen. An abundant undergrowth of Laurels, suggested a name for the locality, and also the name of the Association. An aggregate of about $1,400 in cash and available subscriptions enabled it to commence operations with vigor. Its attention was primarily directed to improvements upon this hill; then extended to the village cemetery, whose ruinous fence was replaced by a tasteful structure of marble and iron, within which, a year or two later, was set a hedge of Norway Spruce. The latter is now kept about 15 feet in hight, and is a superb wall of perennial green. Within this enclosure walks and drives were constructed, shrubbery and trees planted, leaning monuments set perpendicular, and provision made for repeated mowings. Then the streets of the village were taken in charge; sidewalks straightened, trimmed, and gravelled; crossings laid; gutters constructed with regard to thorough drainage, and shade-trees set along the sides of every street. Year after year these improvements were pushed farther, and along the roads leading into the town, and the opportunity for pedestrian exercises greatly enlarged. In undertakings involving more expensive labor—such as grading and working the roads through and near the village—the Association has acted in concert with the municipal authorities, adding its own to the town's appropriation, and thus securing a direction in the enterprise. The two have thus enjoyed mutual aid, to the invaluable advantage of both.

QUACK-GRASS (*Triticum repens.*)

The question is often asked us, Were there no opponents of this crusade of improvement?—Yes—but they were not numerous, and no long time was required to concilitate them entirely. It is not in human nature, when one puts his premises in order and beautifies them with taste, for his next neighbor to endure for long the contrast suggested by the neglect and dilapidation on his own premises, and the chances are that he will not only not only fall in with the prevailing spirit, but become a formidable rival in betterments with the other. The little labor and trifling expense necessary to effect a change in his surroundings, of which, when made, he can not but be proud, ere long convert him from a brake to a spoke in the wheel of progress, particularly when he comes to find—as he will—that there is money in the operation.

Once a year, in the month of August, our Association holds its festival on Laurel Hill. A turf rostrum built against a huge overhanging cliff is the nucleus of operations. On that rural platform sit the officers and invited guests. Around and in front, beneath the shade of the oaks, on the level plat that once formed the Council-ground of the Housatonic Indians, stand or sit the town's people; the numerous summer sojourners and visitors from the neighboring towns, whom the occasion attracts, forming an appreciative audience, sometimes of several hundreds. After prayer (and often music also), the choice of officers, and the annual Report of the Executive Committee, an oration is pronounced—usually by some distinguished native of Stockbridge—which is supplemented by brief offerings in prose or verse, and extempore speeches from visitors. After some two hours of these pleasant exercises, the occasion is closed—at times with a dance by the young people on the verdant sod, to the music of the band. This is peculiarly the village festival, and tends to keep alive and transmit the influence of the institution to which so much pleasure and profit are due. In the course of its existence of 25 years, the records of the L. H. Association show an expenditure of $6,692, with the following as some of the results:

1. The acquisition by legacies of more than $4,000, most of which has been invested in public funds; the revenue from this, with the annual subscriptions, affords available means and secures the permanency of the Association.

2. The setting of 1,686 trees, besides several hedges. These, from mere saplings have become magnificent specimens to afford a grateful shade and be the joy and pride of coming generations.

3. Well ordered streets, sidewalks, gutters, and crossings, rendering locomotion convenient and agreeable at all seasons.

4. A general tidying up of all the private dwellings and premises throughout the community, rendering ours, externally, the finest village in Western Massachusetts—the subject of admiration by all visitors and sojourners.

5. The growing education of our people in the beautiful in nature, aided by art, tending to diminish rudeness, and to the promotion of morality.

6. An increased value of real estate of from 20 to 100 per cent. Trees planted by the Association in its infancy in front of some humble premises, have, on the acknowledgment of a later purchaser, added $500 or $1,000 to his offer therefor. Seldom is a larger income returned from so small an outlay.

7. An example which has been copied by scores of communities that have obtained our constitution as the foundation of similar organizations in distant localities. Such applications continue of frequent occurrence.

Emasculate the Dog.

With few exceptions, there is no place for the dog in agriculture. His ravages among the flocks in many places are an insurmountable bar to sheep keeping, rendering, as it does, so costly a watch over the sheep by night and day as to swallow up the profits. What can be done about it is not so clear. Those who wish to have dogs can hardly be prevented, and the impossibility of keeping the animals under control is evident. So is also the difficulty of recovering compensation for damage where the law provides for it, and the undesirableness of constant and costly litigation for this end, which is a poor remedy, even if successful. We gladly noticed in a recent article in the "Forest and Stream," a suggestion, which seems to be practical and practicable. It is simply to bring these animals under the same control which is effective in restraining others, viz., to cause all male dogs, except those kept for breeding, to be emasculated, and to suffer none others of this sex

to go at large. In this way the present overwhelming increase of the race would be stopped at once, and the cruelties practised by the lawful "dog catchers" be avoided. At present we permit an indiscriminate multiplication of dogs, and annually carry on a war of extermination against them, at great cost and suffering. This is simply making trouble for no purpose. There is a growing disinclination amongst farmers to keep a dog of any kind, and the great majority are preserved solely to gratify the desire of the children to keep a pet or a companion. If the law which applies to male domestic animals of other kinds were brought to bear upon dogs, and these were restrained just as rams, boars, bulls, and stallions are, there would be a prospect that the evil would essentially diminish.

THE ACONITE-LEAVED GERANIUM.—(*Geranium aconitifolium.*)

Sheep Farming for the South.

Exclusive cotton growing is an unsatisfactory business. It has brought many planters to bankruptcy, and more into debt; and the advice is given, "raise corn, grass, anything but cotton." The *American Agriculturist* has for many years advocated the growing of a variety of crops in the Southern States, to such an extent as would involve all the planters capital and attention. First, food crops; then crops to consume upon the farm, and then crops to sell, is a judicious system of management. The Southern farmer then has food, meat, manure, and money; and in this case, the money is more apt to stay with him than that procured by the sale of cotton, from which is deducted the cost of fertilizers, food, interest, etc., and a very small balance, if any, is left for the planter and his workmen. It is encouraging to note the change which has occurred of late years' in this direction, and the consequent improved condition of the farmers. The acreage under wheat, corn, oats, grass, fodder crops, and clover, is yearly widening; and that under cotton at the same time is only slightly diminishing; thus leaving the cash crop, nearly, if not quite, as productive as ever; but rendering the expenditure for food and fertilizers, very small, or completely avoiding them. But it is always safe to have two things to depend upon, so that if one fails, the other may remain, and wool is precisely a companion crop for cotton in this respect. Besides, with wool there is mutton, which is a food crop, and sheep manure is of the richest quality.

Wool is always salable, and is the staple of a large home manufacture. It is worth more in many places, at a distance from the seaboard, than on the coast, if there are mills in the locality to work it up. Mutton and lamb, if of fair quality, are always salable to the local butchers, and provide a very agreeable fresh food for the farmer's family. Sheep will thrive excellently in the Southern States. There are vast tracts of land, notably, the piny woods and table lands of Western Georgia, the Carolinas, and Eastern Tennessee, which are unsurpassed as cheap sheep-walks. In the South, sheep require less feeding in the winter, than in any other part of the country, California excepted, perhaps. Root crops may be grown and fed off from the ground by a "penning" system, and thus the soil be richly and cheaply fertilized and prepared for cotton or corn. Large tracts of adaptable land, can be cheaply procured in many parts of the South. There are several varieties of wild grasses and other plants which grow spontaneously, and which furnish excellent pasture for sheep; among these are the so-called Wire-grass, Bermuda-grass, Crab-grass, and Broom Sedge. Other plants of an astringent and resinous character grow in the old fields and pine woods; and Blue-grass of the best kind grows abundantly upon the table lands. From ample experience, it has been found, that fine wool, and wool of the common Merino crosses, can be grown very profitably in the South; flock owners of large experience, have rated the cost of growing wool under the most favorable circumstances, as low as 6 cents per pound. The climate enables the raising of early lambs for Northern markets, to be carried on with the greatest facility; and the easy communication with the North, as well as markets of the South, ensure a ready sale of the products.

The Aconite-leaved Geranium.

It has more than once come in our way to state that the plants popularly known and cultivated as Geraniums, did not belong to the genus *Geranium* of botanists, but were classed as Pelargoniums. There are differences in the structure of the flower distinguishing *Geranium* from *Pelargonium*, which need not be given here; besides these, the Geraniums are, with very few exceptions, herbaceous plants, while the Pelargoniums, as a general thing, make woody stems. We have several native species of *Geranium*, notably the Cranesbill, which is common in all the States west of the Mississippi, and is well known for its remarkably astringent root, much used in domestic medicine. The European *Geranium sanguineum* and one or two other species are not rare in collections of herbaceous plants, where they are valued for their compact habit and abundant bloom. The species here figured, *Geranium aconitifolium*, the "Aconite-leaved Geranium," is a native of Switzerland, and is interesting as an instance of the renewed popularity of a very old plant. It was introduced into the gardens of England over a century ago, but it is only recently that its remarkably fine foliage—which has the shining green of the Acouite, from which it is named—and abundance of bluish purple flowers, have attracted attention. It is now regarded as a useful hardy bedding plant in England, especially for its early and abundant bloom. We are not able to testify to its hardiness here, but have put out a row as a margin to a bed, and expect to be able to report that it has survived the winter. At any rate, should it fail to be hardy, it is an admirable plant for a cool greenhouse, both on account of its fine foliage, and the abundance of its lively flowers.

THE FOREST ROSE.

New Strawberries of Promise.

"Crescent Seedling" and "Forest Rose."

BY E. P. ROE.

Though far from being a veteran in small-fruit culture, I have already become convinced that Nature does not concentrate every excellence in any one variety. As with our circle of acquaintances, so it is with our lists of fruits, we cannot dwell on the character of even the best of them without recalling faults as well as good qualities. We must bear with our friends' foibles, if for no better reason than that we are in need of forbearance ourselves; but we are under no obligation to cumber our gardens and fields with old acquaintances in the way of fruits, if new and better ones are to be had. If one might judge from the catalogues sent out, it would seem that the public were offered a dozen or more perfect strawberries every year; but in most instances, these new seedlings appear to be like the small children that astonish the home circle, but make little or no impression on the world at large.

The two strawberries that head this article promise to be marked exceptions to this rule. Their promise in the localities where they first appeared, has been so far fulfilled in my own grounds, that the Editors of the *American Agriculturist* feel warranted in asking me to "report progress." Mr. T. B. Pope, of Newburgh, N.Y., an artist well-known for his excellent delineations of fruit, made accurate sketches from clusters of these varieties. Each berry was drawn from actual measurement, the aim being to represent the average size, instead of to mislead by presenting a few unusually fine specimens.

I hardly know what to make of the "Crescent Seedling." It has been called the "Poor man's Strawberry." I think that it might be called more aptly the "Lazy man's Strawberry." As I have seen it growing and bearing this year, it would seem that the picking of the fruit was the only labor worth naming involved in raising this berry; but this item of picking will go far toward making up for what is lacking in the work of cultivation. The two marked features of the "Crescent Seedling" as I have seen it in several localities are: a tendency to take entire possession of the ground—crowding out the weeds as the northern tribes shouldered weaker races aside—and of literally covering the ground they grow on with fruit. It is claimed that it will yield at the rate of 15,000 quarts, or about 470 bushels to the acre. This seems incredible, and as yet I do not believe it to be possible under wide and general culture. If it will yield 300 bushels to the acre, under good treatment, it will, in the estimation of many good judges, work a revolution in strawberry culture. The case has been stated to me in this form: "Any farmer, with ordinarily good corn land, can set out an acre or more of this hardy, prolific berry, and flood the market with the fruit. Therefore, the raising of strawberries will become unprofitable for those who make it a specialty."—I do not believe this. *Fine* fruit will always bring a good price; and no variety will produce *fine fruit* under slovenly culture. The market will be "glutted" with small soft berries; and the "Crescent" will, I think, be both *small* and *soft* if allowed to mat the ground with plants, according to its tendency.

Its lack of firmness—of good shipping qualities—will, I imagine, prove its chief fault. I would advise growers—especially those near to markets—to plant it liberally, but on no account, as yet, to abandon the "Wilson" and other varieties that have proved profitable for many years. I know the *American Agriculturist* will endorse my warning against putting "too many eggs in one basket," especially a comparatively new and untried one. The "Crescent" originated with William Parmelee, Esq., in New Haven, Conn., in 1870, and was sent out by Mr. H. H. Smith, of West Haven, Conn. Mr. Smith has been very fair and open in asking all to come and see and judge for themselves, and the berry has really made its way on its own merits. I have seen it growing vigorously and fruiting enormously on light New Jersey soils, for I took pains to see it in four different localities. In some instances, other and leading varieties standing near it had proved utter failures. It has also done remarkably well on damp and heavy soil in my own grounds. The cluster, here represented, was from a potted plant set out last autumn. The engraving gives the shape and habit of growth. In color, it is a bright scarlet, and looks well in the baskets. Like the "Wilson," it is red before it is ripe, and in this *immature* state the *flavor* is *poor*, but greatly improves as the berry ripens. It has the appearance of being a "pistillate," although it is claimed that it will bear alone. I noticed, however, that in a field of four acres owned by Mr. Smith, "Wilson's" were planted at intervals, and I would advise that some perfect flowered varieties be set out in the same field or garden. As far as I can judge from one season's observation, the "Crescent" ripens about the same time as the "Wilson," and so is one of the earliest varieties.

THE CRESCENT SEEDLING.

The "Forest Rose" is decidedly different from the "Crescent" in many respects, and surpasses it in flavor, beauty, and especially, in its shipping qualities. I doubt whether we have a berry better adapted to long carriage. But thus far it has not proved with me anything like so productive as the "Crescent." It is but another illustration of the truth that all the good qualities are never found in one berry. I exhibited the "Forest Rose" at the Queens Co., N. Y., Fair, this summer, and it took one of the 1st premiums, and was greatly admired. It suffered less from transportation than any one out of 36 varieties I exhibited there. I am growing it on three kinds of soil—the stiffest kind of clay, a light, moist soil, and a gravelly knoll—and it is doing well in each instance. The foliage thus far, with me, has never burned or rusted. The most emphatic way in which I can make known my hopes in regard to it, is to state that I planted it more largely than any other kind last spring.

It is a chance seedling, and was discovered by Mr. J. A. Fetters, of Lancaster, O., while hoeing in his vineyard, about seven years ago. Mr. Fetters sold out his right in the seedling to Mr. Leo Weltz. So eminent an authority as Dr. J. A. Warder, after visiting the original plantations of the Forest Rose, made a report to his Society as follows:

"This new strawberry promises, indeed, to be a great acquisition to our stock of varieties. For a long time, 'the Wilson's Albany' has borne preeminence as a market berry—for which purpose it is indeed admirably adapted—but cultivators have desired something even much better in quality. Here we have *elegance of form, brilliancy in color, great size and firmness to bear transportation*, all combined with *table qualities* of a higher order than in 'Wilson's Albany', which it surpasses even in field culture. When the enthusiastic proprietor invited some of his friends to visit the plantation to see *the largest strawberry in the world*, the expression was received with a few grains of allowance, and was attributed to the warmth of an over-sanguine owner of a very good strawberry; but after a thorough examination of the bearing plants in different situations, the conclusion was reached that the Forest Rose was at least one of *the very best strawberries known*."—Dr. Warder is excellent authority.

The claims of these comparatively new varieties are presented to the readers of the *American Agriculturist* that they may have a chance to work the mines before they are over-crowded or exhausted. I may seem an old fogy when I say, that while I shall give these plausible strangers plenty of room in which to prove their merits, I shall still stand by my old and tried friends in the strawberry field.

Layering the Strawberry in Pots.—It is not too late for those who would make the most of a rare variety, or who have a small bed and would make a large one to come into fruiting as soon as

possible, to strike the runners in pots. This method, while it can not be profitable in field culture, allows the amateur to save a year, if he will take the small amount of trouble it requires. Small flower-pots, two or three inches in diameter, are filled with rich soil; plunge these into the soil of the bed, each directly under an unrooted runner, or rather the bud of a new plant at the end of the runner—setting the pot down in the soil of the bed up to its rim. Place a small clod, or stone, or forked twig to hold the runner in place upon the soil of the pot, and it will take root in two weeks or so; the connection with the old plant may then be severed, and the new plant turned out of the pot and set in the new bed without any disturbance of the roots. If set this month, well cultivated, and the runners kept off as they appear, a very fine crop may be expected next spring. The layering should be done at once.

Notes from the Pines.

In a fairly large collection of ornamental shrubs, I know of none that is more desirable than the

Double-flowered Deutzia Crenata.

I refer to the shrub first introduced under that name, and which has been in our collections for several years. In the first place, it fills a gap, by coming along just after the Weigelas and other early-blooming shrubs have done flowering, and makes its display about the middle of June. It first gives us a few days of promise, and these show the outside of the petals with a most charming tinge of purplish rose. The few days it remains in this state, are, to my notion, the best; but it after this comes into full flower, and the bush is a sheet of white, as by opening, the interior petals quite hide the outer colored ones. After this excellent shrub had become well established, the nurserymen offered, with some flourish,

Deutzia Crenata flore alba pleno,

which, being interpreted, means the White Flowered Double *Deutzia crenata*. This has flowered with me this season, but is in no respect preferable, indeed, not equal to the older variety. It is true that the flowers are pure white throughout, but give only pure white, while the older kind gives us both the purple-rose tinge before it fairly opens, and at length as good a white as the other....In former notes I have mentioned our

Native Wistaria,

Wistaria frutescens, as a much neglected climber. It does not flower until the vine is in full leaf, and its flowers are not so large or of so deep a purple as the more generally cultivated Chinese species. It is for the very reason that it flowers later that I value it. The Chinese is good in its way; still, if I could have but one, I should take our native, as it gives foliage at the same time with the flowers. Having cultivated the ordinary purplish-flowered form, and also the white variety for several years, I was quite surprised to find, in conversation with horticultural friends around Boston, to learn that

The White American Wistaria

was quite unknown at that center of horticulture. This led me to "hark back" on the plant, and trace its origin. I found that my vines were sent me, the season that I came to "The Pines," with a very generous contribution of other hardy stuff, from my not very distant neighbor, A. S. Fuller, Esq., and that he procured his original plant from W. R. Prince, of Flushing, who had in his time a most remarkable collection. Beyond this it is not possible to trace its history; but those who knew Mr. Prince in his younger days, are aware that he spared no pains in procuring any new and strange plant that he might hear of, in any part of the country....Several years ago a gentleman in Tennessee (I think) sent me some small trees of

The Dyehouse Cherry,

so called because it originated on the place of a person by the name of Dyehouse. When they came, I, to save them, put them in temporarily where they grew a year or two, and were then set out where they were to remain. This is the first year that they have borne anything of a crop, and though the trees are not over 6 or 8 feet high, they were fairly filled. The fruit was ripe at least a week or ten days before the "Early Richmond," heretofore the earliest cherry I had, and while about the size of that, is a palatable fruit. The "Early Richmond," even when dead ripe, is, to my taste too sour for anything but cooking ... It is curious to see how flower-fashions run. I can recall cases in which the *American Agriculturist* was the first journal to describe and figure a plant, and I may say the same of the "Gardener's Monthly." The plants, whether of native or foreign origin, have been presented to the horticultural world in these American journals for the first time, at no little trouble on the part of the editors, to procure and grow them, and at considerable expense on the part of the publishers, in giving excellent, and original engravings. Yet, what good does it do?—It is only when these same plants, years after, are brought out in European publications and in the catalogues of European cultivators, that our growers become aware of such things. It would seem that our people can not appreciate the value of a plant unless it has been first endorsed abroad. As long ago as 1868, I saw a bed of

The Japanese Iris (*Iris Kæmpferi*)

in the garden of James Hogg, of New York City. The plants had been sent by that most excellent horticulturist, his brother, Thomas Hogg, then a resident of Japan. After they had been in the garden of James Hogg sufficiently long to show that they were perfectly hardy, I, in October, 1870, gave some account of them, with an engraving, considerably reduced in size, it is true, but sufficient to show their great beauty, and how unlike they were to any heretofore known forms of cultivated Irises. Within these few years the Japanese Irises have been introduced into European gardens, have been figured in European journals, and now our dealers have found out, from across the water, how fine they are, and offer them as novelties. Having cultivated them these 8 or 10 years, I can endorse all that the dealers say of their beauty, and hope that they may be as well known as their merits deserve. In the first place, they come into flower after the ordinary garden Irises have done blooming. The flowers are quite unlike those of the ordinary garden varieties, as they spread out in a flat plate, and are seen at their best when looked down upon. They are from four to six inches or more in diameter, and present a great variety in form, color, and marking; there are pure whites, pure blues, and those of the richest imaginable royal purple. In the way of marking, there is the greatest imaginable variety. Nothing can be richer than some of the intense purples and blues with lines of golden yellow, or more delicate than the whites, with net-work of blue and purple, and *vice versa*. With such a marked tendency to vary, no doubt seedlings will be raised finer, if possible, than any we now have. European growers are astir with this Iris, and I am glad to know that Mr. Thomas Hogg, who has introduced so many choice Japan plants, without claiming the least credit, has selected the choicest of his importations to which, as will be seen elsewhere, he has given names and descriptions, and has placed them in the trade, where they will be accessible to those who fancy choice plants. ....Sometime ago, in speaking with Prof. C. S. Sargent of a brother horticulturist, he remarked, "he knows a good thing when he sees it." I have more than once had occasion to think the same of Prof. Sargent, who not only "knows a good thing when he sees it," but he also takes care that others shall know it, by freely distributing, as well as talking about it. Among the plants that he has been instrumental in thus popularizing is

Hall's Honeysuckle (*Lonicera Halleana*).

In the general confusion in which the genus *Lonicera* is at present, I will not undertake to say to which botanical species this belongs, but as it is in several catalogues as *Lonicera Halleana*, there can be no difficulty in getting it under this, its horticultural name. Any one "who knows a good plant when he sees it," can not fail to appreciate this as a most valuable climber. Its lithe slender stems make it a most manageable plant. I have it growing flat upon the ground, and running up upon what is part fence and part trellis, and also in pot culture. It is one of those easy-going things that will grow anywhere, and bloom whether 2 or 20 feet high, and—what is more to the purpose—keep on blooming. It blooms right along, all summer. Its flowers, when they first open, are of the purest white; a little while later they are of a delicate buff-color, and before they are done with, become darker still—almost an orange-color. All the while they have a most pleasing perfume. In some former talk I have said something about

Wire-Work on the Veranda

to the effect that one could decorate his veranda, or portico, as he pleased, without having the wire in contact with the woodwork. Screw-eyes of galvanized iron, 4 to 6 inches long, may be had at the hardware stores, and with these and galvanized wire, No. 14 or 16, one can build a framework upon which such vines as Hall's Honeysuckle can be trained, and keep the vines from actual contact with the wood-work, while they appear to completely clothe it....Early peas are for the most part unsatisfactory for their shortness of bearing, the best of them giving but two pickings, at the most. This is all well enough for the market-gardener, who wants his crops all at once, and then can clear his ground for something else. Generally no crop is so unsatisfactory as *early peas*. There is the trouble of sticking, picking, and other time-taking work, for a mess or two. With later peas, like that good old stand-by, the "Champion of England," it is different. One can pick, and come again and again. I had about come to the conclusion that early peas were more plague than profit, when this season, finding "Early Peas" on my memorandum, I asked Mr. W. H. Carson to give me some of his best early peas, leaving the choice to him. I thought no more of the matter, until the peas came to the table. We had, of course, at first some strain of "Daniel O'Rourke," early, and peas, but calling for no comment. Then came peas that *were* peas, and on inquiry I found they were

Kentish Invicta,

with the remark that they were a great cropper, and held out remarkably well. Seedsmen make a point of five days, in the earliness of peas, but I had rather wait twice five days, and get peas like the "Kentish Invicta," than to bother with such flavorless things as the Daniel O'Rourke, by whatever name it may be called—and it has a dozen or more.

Quinces and their Cultivation.

Why is it that the Quince, which is as hardy and as well adapted to our soil and climate as the apple, is comparatively scarce, and commands on the average three or four times as much in our markets? There is seldom, if ever, a "glut" in the market, and prices are uniformly remunerative, bringing the producers for handsome fruit from $2 to $4 a bushel, in New York and Boston, almost every season. The apple, in the fresh or dried state, enters into the annual supplies of almost every family, as cider, vinegar, jelly, sauce, and other preparations, and is also a profitable feed for our domestic animals, while not one family in ten knows anything of quince preserves and jellies. It is really one of the most appetizing and wholesome of the sweetmeats found among the stores of our housewives; and the cultivation of this fruit should be greatly extended. We know of no fruit that promises so good returns as this to the intelligent fruit-grower. If we look at the quince plantations, as we ordinarily find them, they are few and far between in the farming districts. The popular fancy is, that the bush flourishes best in a damp soil, and if there be an undrained swale on the premises, we may safely look for the quince bushes there. More frequently than otherwise, they stand in the grass, receive no cultivation, and after a few brief years die, either from stagnant water, or the attacks of the borer. Under such treatment the trees have no chance to bear fruit, and make themselves profitable. The quince wants a deep, rich, rather moist soil, but it should always be well

drained. Good corn land, that will bear maximum crops of grain, will bear good quinces. No fruit pays better for thorough cultivation, and the ground should always be kept under the spade or plow, and should, if we want abundant fruit, receive a good dressing of manure every season. The bush, or tree, requires very little other care than the occasional thinning out of the branches if they crowd too closely. The thinning of the fruit, where it sets too abundantly, will increase the size and profitableness of the crop that remains. The fruit, as well as the flower, is quite ornamental, and an attractive feature in October and November. The "Apple," or "Orange Quince," is by far the best variety. It ripens earlier, and brings the best price in the market. The quince is easily propagated from cuttings, and this is the simplest and best method of multiplying a desirable variety. Cuttings put down in the spring, in a moist, well drained soil, a little shaded, will root about as readily as the currant. In making a plantation, the young trees should be set at least ten feet apart, and if the soil is rich, fourteen feet will be none too much. CONNECTICUT.

[Our correspondent anticipates our intention to call attention to the importance of this much neglected fruit. We give his article as introductory to others we had in mind, going more into details of the culture. There is one point on which we would like information. We have, as hundreds of others have, a dozen or two quince trees, set here and there in by-places. They, situated as they are, seem to be profitable. Has any one of our readers tried an *orchard* solely of quinces? If so, will he tell us something about their culture in this manner, what are the difficulties in and chief obstacles to the success of an orchard of quinces, and what is the average profit per acre of such a plantation? These are points upon which many would like information. We know all about their hap-hazard growing—for it can hardly be called cultivation—but who will tell us about "quince culture for profit?"—ED.]

Okra—Gumbo.

Okra is a vegetable that is slow in finding its way to the garden and the table in the Northern States, while in Southern families it is in very general use. The plant is much like a large Hollyhock, with yellow flowers, which are succeeded by angled pods, six inches or more long, and over an inch thick. These pods, when so tender that they will break, are very mucilaginous, and give off, when cooked, a large amount of gummy matter. If they begin to mature, they become woody, filled with hard round seeds, and quite unlike anything edible. Though in the catalogues, the plant is called "Okra or Gumbo," the name Gumbo properly belongs to the dish prepared from the pods, rather than to the plant itself, as the Southern cooks make Gumbo without the use of Okra, but substitute the pith and young leaves of sassafras, one of the native violets, and perhaps other plants. The best Gumbo is made with chicken, though veal and other meats are sometimes used, and is merely a stew made thick by the use of an abundance of Okra pods. Gumbo soup is any soup to which sufficient Okra is added to give it the desired thickness. The young and tender pods, boiled and dressed with melted butter, are liked by many, but they are rather too gummy for those who have not become accustomed to them. A dish made of the Okra pods and tomatoes stewed together, is also prepared. One correspondent inquires if we know of any method of preserving Okra by canning. We have not known any attempts at canning the pods, but they are often dried; the pods of the proper age for cooking, are sliced, strung upon a cord, and dried in the same manner as fruit. They are also packed in salt, just as cucumbers are, and when wanted for use, are freshened in cold water.

What May be Done with a Soap-Box.—The writer's first propagating house was a soap-box—hardly this, for it had neither cover nor bottom. It was the frame formed by the four sides, and over either the top or bottom—which, is immaterial, was tacked a piece of strong muslin. This was set in a sandy corner of the garden, and during the summer, cuttings of all kinds were placed in the soil beneath it. Sometimes the cuttings of shrubs were from sufficiently unripe wood, and all grew—sometimes the cuttings were too old and all failed, but take the season through, a wonderful amount of rooted stuff came out from under that little soap-box. Phloxes and Chrysanthemums, among herbaceous plants, were rooted by the dozens; and of even so uncertain a thing as "Bleeding Heart," some took root. This is something within the reach of every one, and we are sure that this, our first attempt in this way, gave us more real pleasure, than could the best propagating house.

New Varieties of Japan Iris.

It is stated elsewhere ("Notes from the Pines") that Mr. Thomas Hogg, who was the first to introduce *Iris Kæmpferi*, has selected 20 of the finest varieties of this charming plant, to which he has given names, they having been heretofore known only by numbers. To avoid future confusion, it is desirable that these be placed on record, which we do in the interest of horticulture, and without the request, or even the knowledge of Mr. Hogg, giving, with the names, his brief descriptions, and also the numbers by which they have been designated:

1. *Ichibau*—Light reddish purple, pencilled with white; double; dwarf; medium early. 2. *Prof. Thurber*—Purplish blue, mottled and spotted with white, fine yellow eye; double; early; first-class. 3. *Princess*—Lilac, finely pencilled with blue; double; dwarf; fine. 4. *Robert Buist*—Dark indigo blue, fine yellow eye; double; first-class. 5. *Mr. Buchanan*—Light indigo blue, fine yellow eye; double; large; extra fine. 6. *Emperor of Japan*—Maroon; first-class. 7. *Pearl*—Pure white; tall; early; first-class. 8. *Daimio*—Dark pink, pencilled with white; medium hight; early. 9. *Fusiyama*—White, pencilled with purplish stripes, purple center; tall; early; first-class. 10. *Mr. Chotars*—Light blue, striped and mottled with white; tall; early. 11. *Minister Mori*—White, deeply laced with pink; early; first-class. 12. *Iyeyas*—Purplish blue, solid color; tall; early. 13. *Murusaki*—Purple, wavy petals. 14. *Water Nymph*—White, deeply laced and shaded with lavender; tall; early; distinct. 15. *Diabertz*—Deep indigo blue; semi-double; dwarf; medium early; first-class. 16. *Imperial Standard*—Purplish pink, mottled with white; tall; early; first-class. 17. *Otentosama*—Light purple, slightly mottled with white; tall; very early; handsome. 18. *Empress of Japan*—Lavender, pencilled with white; tall; medium early; first-class. 19. *Perfection*—White, pencilled and mottled with purple; dwarf; medium early; fine. 20. *Virginalis*—Double white; extra fine.

The Burn-Heap.—Every garden of any considerable size has much rubbish to dispose of. It is not necessary to argue the value of a compost-heap, to which a large share of the refuse can be taken, to be converted into manure—at least not to any who have tested its value. But besides this, there is needed a burn-heap—and, we may add, what is not exactly a heap, but the reverse—a hollow, or place, to receive what belongs to neither the compost or burn-heap. As to this last, there will be on a large place some ravine to be filled, or low place to be graded, in which the small stones and other incombustible rubbish may be made useful. But there is much material that had better be burned; superannuated labels, pea-brush that has outlived its usefulness, the prunings of trees unavailable for firewood, and most especially those that have been cut away because of blight, the weeds that have been left alone (and the most careful of us have such) until seeds have begun to mature—these and many other things belong properly upon the burn-heap. The heap should, of course, be where no harm can come from it, and be fired from time to time, as fuel accumulates. We do not commend this as merely a method of getting rid of rubbish, but, well managed, it will give a supply of ashes—a material so useful to the gardener, and so difficult to procure in thickly settled communities. If the ashes are gathered after each burning, one will be astonished at what a quantity may be thus obtained each season from material otherwise quite worthless. It is a trifling matter in the way of labor, but the valuable results are not to be despised.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Home Topics.

Co-operation in Taking Homesteads.

Hard times have driven many persons to seek Western homesteads. Beautiful farms are to be had almost for nothing, except their actual settlement and cultivation. Yet these farms sometimes cost a great deal more than gets set down and footed up in the cash account. A little story has just been told me that illustrates this. It is about a young man who went from this State (Minnesota) further west, secured a homestead, built a small shanty, such as he could afford, furnishing it with the barest necessities for housekeeping, and then drove eighteen miles to the nearest railroad station, to meet his young wife. It was raining hard when they set out for "home," and the ox-team made slow work on the journey. Their clothes were soaked with rain when, late at night, they reached the lonely spot where they should have found a shelter. But the wind had *blown away* the light cabin, and the cooking-stove, and other heavy pieces of rude furniture were all that were left by the storm. They had nothing prepared to eat, and nothing dry to put on. Early the next morning they started for the nearest town, but the husband fainted before they reached it, and the sick young wife drove the oxen into the strange town,—to find help and friends; let us hope that they found needed aid, but I know nothing further of their story. Of course, this is an exceptional case, but it shows that every precaution should be taken to guard against exposure, lack of provisions, and undue fatigue. It is always a hazardous business for families to break up old associations, and go off to strike root in an entirely new place, far from neighbors, and entirely among strangers.—I am glad to see that better methods are taking the place of the old single-handed efforts at

Making Homes in the Wilderness.

There are colonization bureaus, which aid emigrants to settle in congenial groups, with some defence against the worst hardships of pioneer-life. The Catholic Church, in some cases, looks after members of its own flock seeking homes on the new lands, and settles them where they can peaceably worship God in their own way. In Minnesota there are several prosperous Catholic settlements, carefully planted and tended by the heads of the Church. The Odd Fellows settle people of their Order in pleasant companies, helping them to get a good start in the way of comfortable homes, with pleasant villages and adjacent farming population. Soldiers, seeking homesteads under the acts especially for their benefit, unite in associations, and send committees to find large tracts of good land yet unappropriated, where they may settle in companies and begin at once to enjoy the advantages of civilized life. This method is adopted by others than soldiers, and some of the most enlightened and prosperous settlements in the West have been started in this co-operative manner. Beginning in this way, with united enterprise and forethought, it becomes possible to carry out some of the excellent suggestions made by Col. Waring in his little book on "Village Improvements and Farm Villages." It seems to me, however, that in starting new villages, far from the great cities which furnish a ready market for farm produce in their vicinity, co-operation in machinery and work should be carried further than that book suggests. It should not be too exclusively a farm village, or a settlement of farmers. Of course, mills and factories, and a village population of mechanics and trades-

men would add greatly to the farmer's prosperity and to his social advantages. Enterprising men have founded colonies here and there, with more or less wise forethought for the good of the colonists, as well as for the building up of their own private fortunes. But why should not homesteaders themselves unite, getting their lands at homestead rates, and by associated effort in every way open to them, avoiding the worst evils of isolated pioneer life, and securing for themselves and families intelligent, industrious, and order-loving neighbors? This talk does not seem to me inappropriate for the household columns, since women and children are the worst sufferers from the loneliness and the discomforts of the usual pioneer life.

Maternity Alleviated.

"For lack of knowledge" not only do people die, but a very unnecessary amount of suffering is endured, and especially by the mothers of the human race. I have long wished to do something toward the prevention of this suffering, by telling other women a part of that which I know upon this subject. It falls to my lot to give private advice to a young wife, who suffered so severely at her first experience as a mother, that she looks forward with dread to its repetition. I think she need feel no physical dread whatever, if she is so situated as to carry out the latest approved methods. I confess I felt some prejudice against the new rules, fearing that what might contribute to the mother's ease and comfort, would prove detrimental to her child; but experience and observation have removed these prejudices. The experience was only partial, and was gained by following no rules but natural instinct. The very common desire for a change of diet, especially for acid fruits, is Nature's own voice, and should be obeyed. Apples were scarce and dear four years ago last spring, and I was ashamed to tell how many I sometimes ate at a meal (from five to ten small ones), but no other food was so delicious, and no meal gave me subsequent comfort without at least a single raw apple. A few months previous, I could hardly eat raw apples at all. Then grapes seemed the only food the stomach craved and accepted without nausea. As soon as the great event was over, and a little stranger looked to me for nourishment, the wish for fruit disappeared, and my oatmeal and graham gruel, seasoned with cream, became for a while the sweetest of delicacies. This experience was, for its ease and safety, a marvel to myself and to all who knew of it, and we were soon convinced that fruit diet and out-door exercise had caused the wonder. Since then we have heard of, and personally known, much more remarkable cases—equally beneficial to mother and child. A diet wholly of fruit is not recommended, but fruit should be very liberally used, and such food as contains much mineral matter, and tends to solidify the bones, should be avoided. The unseen growth goes on all the same, except that the bones remain in the cartilaginous state. It is easy to understand that this condition of the offspring saves the mother much pain, and a change to the ordinary diets immediately after promotes the child's full and healthy development. The graham and oatmeal, so useful to growing children, especially because they build up the bones, should be very sparingly used previous to confinement, and cream should be preferred to milk. The fruit diet has a tendency to keep the whole system in excellent condition. Vegetables are better than grain food at this time, beans being most objectionable, and peas and potatoes next. Rice, sago, and tapioca are recommended, and when meats are used, the flesh of young animals is preferred. Stimulants and spices should not be used. A good deal of gentle exercise is advisable, but severe labor and fatigue should be avoided. Household exercise, when not very confining, is excellent, but all the pure out-door air it possible to get, should be taken day and night. Walking is decidedly useful, and no false modesty should prevent a woman from going out freely for the exercise she so much needs. If she respects herself, she will have the respect of all decent people; but enlightened persons will only pity her ignorance, or silliness, if she shuts herself indoors for fear of observation. Of course, a modest woman does not needlessly publish her sacred secret. The general rules of health, cleanliness, comfortable clothing, plenty of sleep, freedom from fatigue and excitement, regular meals, and none late in the afternoon, are all especially applicable at this time.

High Art and Woman's Dress.

Chief among artists in devising costumes, is the celebrated Worth, of Paris. But it seems that even he cannot do as he pleases, and is not responsible for all the absurdities of feminine attire. A number of American ladies, who were deeply interested in the subject, sent to Worth this question, "What costume can be devised that will be perfectly healthful, and at the same time beautiful?"—This is his astonishing reply: "I have to make the same answer to you that I have made to the women of Europe. The costume of the Persian women is the handsomest upon the face of the earth. It consists of a loose waist, short skirt and trousers, not too loose. I have made this costume beautifully, and hung it up in Paris, but the women will not wear it. I can do nothing more. They must suffer until they are willing to adopt it."

Now, who will dare to say that short skirts and trousers are absolutely and forever unbeautiful? That they are *unbecoming* to isolated women in public, at the present day, I am willing to admit, but I am quite positive that a dress that gives freedom to a woman's limbs will be entirely becoming when the mass of women are neither slaves nor pets, but mutual friends and helpers of men.

Who leads the fashions? We may say a word on that subject at another time. But there is a band of artists, poets, and others of their set over in London, a constantly increasing number, I am told, who refuse to be led about in costume by every fantastic whim that seizes upon the so-called leaders of fashion in Paris. So now we hear about the "Pre-Raphaelite style of dress." The aim is to have a thick waist—"thick like the Venus de Medici, thick like that far nobler Venus of Milo." The artists declare that the small, tight-laced waists are decidedly unartistic and vulgar, and that the natural beauty of the female figure is lost by destroying its proper healthy proportions. The sleeves are very high on the shoulder, sometimes a little fulled, to fit the shoulders easily, for they insist that a woman should be able to move her arms, when dressed, as freely as when undressed. Isn't that a modern idea though? I remember well when it was common for women to unfasten their dress-waists if they had to re-arrange their hair, their arms were so bound down by the arm-holes cut low on the shoulder, all for the sake of beauty, which *must* be regarded, however uncomfortable its vic-tim. But of the freedom of the lower limbs, I hear nothing yet from the Pre-Raphaelites, except that the skirts must never be tied about the legs. We can wait, however, since the world does move; only let us quietly bear witness to the truth when it is proper to give our opinion, for public opinion is made up little by little.

Oat-meal Mush Improved.

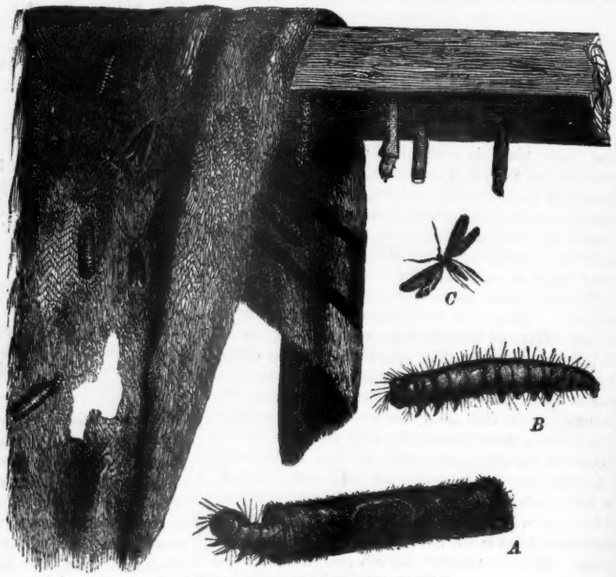
Much better than the old way of stirring the oatmeal into boiling water, is the new way of cooking it in a farina kettle. If no farina kettle or steam-cooker is at hand, one may always be improvised in this way: Set a stone-jar or a tin-pail containing the food to be cooked, into a kettle of water (putting a couple of sticks under the jar, to keep it from direct contact with the bottom of the kettle), over the fire, and keep the water boiling until the food is cooked. This method is best for cooking cracked wheat and hominy, and now I find it best for oat-meal also. [It is surprising to find one so generally well versed in the best methods of preparing farinaceous foods, proposing as *new* a method of preparing oat-meal and cracked wheat that we have practised almost daily, for years.—We add our commendation to hers.—ED.] Probably all of these materials are best cooked with part milk. Oat-meal is excellent when one cup of oatmeal is put into two cups of milk and two cups of water, and steamed for an hour and a half. Rice cooked by the same rule is very nice. No stirring is necessary, the salt being put in at discretion in the beginning of the cooking.

Sponge-Cake Cream-Pie.

One teacup of sugar, one teacup of flour well mixed with a level teaspoonful of baking-powder, three beaten eggs. Bake in a flat, square tin, and when cold, split open and spread with cream, prepared as follows: Whip a pint of sweet cream, until very smooth and stiff, sweeten and flavor to taste (those who like vanilla will prefer it in this case), and spread it stiff and cold upon the split sides of the cake, placing these two sides together again so that the cream does not appear, and the cake-pie looks like an ordinary cake. One can hardly find a more delicate and delicious dessert dish than this.

The Clothes-Moth.

Some housekeepers seem to have as much anxiety about moths as David Copperfield's aunt had about donkeys. Aunt Betsy was quite sure of her pet aversion, while many housekeepers accuse nearly everything that flies toward the lamp in the evening of being a "moth miller." Being on the look-out for some large creature, they accuse the innocent insects, and generally quite overlook the mischievous one, from its insignificant size. We every



CLOTHES MOTH—MILLER AND LARVÆ.

now and then get letters from those who have put away their store of woollens and furs for the season, which indicate a fear that something more should be done to insure their safety, or inquire about this or that moth preventive compound. Much of this anxiety would be removed, and much trouble in chasing and killing of insects which are quite harmless, so far as clothing goes, be saved, if housekeepers understood the appearance and the habits of their enemy. With this view we give an engraving of the common clothes-moth in its various stages of natural size and magnified. The form in which the insect is most popularly known as "moth," is seen enlarged at *A*, and of about the natural size on the cloth; it is really a caterpillar, shown naked and magnified at *B*, but it is rarely

seen, except in its case, or shelter, that it carries about with it. This case is made from minute bits of wool or soft hair which it fastens together with the finest possible silk, which it spins as needed. The insect feeds on the wool, which furnishes it both food and raiment, as it begins to build this case when first hatched from the egg, and goes on adding to it as its growth requires. It does not feed in one place, but travels about, cutting away the nap, and feeding here and there, often leaving a trail of its delicate silk, to mark its track. When it has completed its growth, the insect goes to rest in the chrysalis state, and in due time comes out a minute perfect moth; this, the dreaded moth-miller of the housekeeper, is shown at *C*. Its body is but a little over a fourth of an inch long, and its spread of wings only about half an inch; it is of a light buff color, and has a satiny lustre. So quiet is it in its flight, and so modest its appearance, that one who did not know the insect would not think it capable of so much mischief. In this state it flits about, looking for a dark place to lay its eggs, that will also afford abundant food for its young. The eggs being deposited, the life of the parent ends, and so soon as the young are hatched, they commence anew the work of destruction. These being the habits of the insect, it will be seen that clothing, etc., put away in such a manner that the mother insect *can not reach* the articles, in order to lay her eggs, will be safe. It is important to remember how small the insect is, and that it can pass through an opening not very much larger than a pin-hole. Articles, if proper care be used, may be made as secure *in paper* as in the most costly moth-proof trunk. Common boxes may be thoroughly covered with *paper*, outside and in, or a well-made box may be made secure by pasting strips of strong paper or muslin around the joints, after the cover is fastened down. Let the package be made moth-tight, and no camphor, cedar-chips, or other aromatic will be needed. When moths are once in a fabric, heat will destroy them; a heat less than that of boiling water (or 160°, it is said), will kill them. So will the vapor of pure benzine, such as is prepared for cleaning silks, etc. With proper precautions to keep them out, it will be unnecessary to resort to any measures of this kind. Before putting them away, the articles should be beaten, and carefully examined, so that no eggs or young moths may be put away with them. It is commonly supposed that June is the month in which special vigilance must be observed; this is an error, as the insects begin to fly in early May, and continue throughout the warm months. It is hardly necessary to add that all the perfect insects, or "moth-millers," that are met with, should be destroyed.

Household Notes and Queries.

Last month it was stated that, lacking just one, 40 housekeepers came to the help of their sister who wished for a recipe for the "Queen of Puddings." We had not then began to hear from the "outer edge" of our immense circle, and can only say that of late the responses have come in such numbers that we have given up keeping count. It is certainly very pleasing, this readiness with which many others endeavor to aid one of their number; but what is more pleasing, are the good words which come with these responses. Several in furnishing the particular recipe asked for, add others voluntarily, and what we are almost as glad to have, some few ask questions to which they would like replies. All in good time—but now

"The Last shall be First," and we give place to the correspondent whose note has made the longest journey, Mrs. "L. M. S.," Whitman Co., Washington Terr. We would say to Mrs. S., and all others, no matter where they may be, that their contributions are none the less acceptable because they "live so far away." The *American Agriculturist* regards the whole American Continent as its field, and if others have the misfortune to live elsewhere, we claim them as a part of our great family, and extend to all the same welcome....Our friend over "towards sundown," sends, besides the "Queen of Puddings," a recipe for

Apple Dumplings.—Use good sized, rather tart apples, pare, and remove the cores; envelope each separately in puff paste and tie it in a piece of cloth; boil or steam for one hour. Before serving, remove the cloths, cut a piece from each and put in some sugar and fresh butter; replace the piece of paste, and sprinkle with powdered sugar. If preferred, they may be served with liquid sauce or sweetened cream....The same correspondent sends

Another Method, called "Apple Roll."—One lb. flour, one fourth lb. of butter; mix with sufficient water to make a not very stiff paste. Pare and slice rather thick, some tart apples. Roll out the paste as for pie-crust, and spread the sliced apples to cover it; sprinkle on a little flour, and roll up as tightly as possible without breaking the paste. Cook it in a steamer, or wrap in a cloth and boil for an hour. Serve by cutting across in thin slices, with sauce of butter and sugar....Here comes a recipe from "Down East;" Mrs. "S. M. A.," of Conn., gives her method with

Baked Apple Dumplings.—Pare and core smooth apples of uniform size, and fill the cavity of each with sugar and a little cinnamon. Divide the paste into as many parts as there are apples; roll each piece out square, and enclose an apple in it, slightly wetting the edges to make them stick. Bake in shallow pans, and serve with hard sauce.

Rye Minute Pudding.—Heat milk to the boiling point, salt to taste, and stir in gradually rye-flour to make a thick mush. Cook about 15 minutes, and eat with sugar and cream. [This we know to be good, and it recalls pleasant recollections of early home life.—ED.]

Evaporation.—A lady in Western N. Y. asks whether a liquid will evaporate more rapidly in an open vessel, or in a closed one, like a tea-kettle.—In an open one, most decidedly, as may be shown by taking two saucers of equal size, placing an equal quantity of water in each, and setting them on the back of the stove, or in other warm place. Now put a piece of stiff paper, piece of window-glass, or other material, over one saucer, so as to two-thirds cover it, and leave the other uncovered. The difference in time between the evaporation of the water in the two saucers will be very marked. ....One asks if we know any preparation that will

Remove Hair from the Face without injury to the skin. We know of none, and do not think there is such a preparation. With considerable experience in such matters, having chemically examined them, all that we know of contain some form of *arsenic*. In the use of this, injury to the skin is the least danger; a greater one is that arsenic may be absorbed. We have seen many cases in which these have been used, and they leave the dark roots of the hair in strong contrast with the white skin, making the blemish, if such it be regarded, more conspicuous than before.....This brings to mind a most wicked adulteration recently discovered in Europe. *White arsenic* is a very heavy powder, and is so abundant in the refining of some metals, that the trouble is to get rid of it, hence it is a cheap substance, of which the supply is greater than the demand. Recent medicinal journals say it has been used to adulterate

Toilet Powder! Just think of it, one of the most deadly poisons known, used because of its cheapness, to add weight to an article applied solely to the delicate skins of women and children. Fearful and incurable skin diseases upon children to whom it had been applied to prevent chafing, led to the discovery. It is safe to discard *all French* toilet powder. Safe preparations are put up in this country, but each mother can make her own, because the best are only

Perfumed Starch.—Starch, made perfectly dry, and sifted through the finest sieve, may be used, or a few drops of any desired perfume may be mixed with it. Those who have lavender or other aromatic flowers can fold them in thin paper, and place these, with layers of starch, in a box, renewing the flowers every few days, until the starch has absorbed sufficient perfume. The starch will take up a little moisture from the flowers, and it is best to let it be exposed to the sun until quite dry, and then if at all lumpy, be sifted again.

BOYS & GIRLS' COLUMNS.

The Young Microscopist's Club.

Some of our correspondents write about things which are not quite microscopic, though they find our Microscope a great aid in examining them. For this reason, if I answer all those who write, I shall not always talk about really microscopic things. Here is a letter from "C. M. M.," Nahant, Mass., who writes that he has "made

A Very Curious Discovery

this morning—curious, at least, to me. * * * * In rambling about the grounds I noticed that the grass appeared spotted with white. Examining it closely, I found it to be little clots of froth, or foam, looking much like spittle, and then I remembered hearing or reading of something called "Frog's Spittle," and thought that this might be it. There were great quantities of this froth, and I cut five shoots of grass with it attached, and took it to the house to examine more nearly. It was not thick nor glutinous, but thin, and likely to drop off, so I put it on a bit of paper, when, to my great surprise, seven little creatures commenced walking about. They were of different lengths, from a quarter to an eighth of an inch—a fat little body like that of our "Hay-makers" or Summer Locusts, with eyes and mouth *very* distinctly developed, and black, while the body was a greenish yellow, like the earliest leaves of the Sugar Maple. Now, I want to know what these little things are—how they came there—and what they will be eventually. Can you help me?"—The insect is one of a number which are called

Spittle Insects.

It is very difficult to get any definite information about our insects, unless they happen to be destructive to vegetation, in which case Harris in his work, or Riley in his various reports, is likely to have something to say about them. Others have written about insects, but their works, while they may contain the very information we seek, have such miserable indexes, that it is not easy to find what we want....No doubt most of you understand, for I have often stated it, that insects generally make their growth in what is called the larval state—the caterpillar is the larva of the butterfly or moth, the maggot is the larva of some kind of fly, and so on. In their larval state, insects are often very slow moving and helpless, and there are many curious ways in which they hide from their enemies, especially the birds. Some insects have a way of hiding themselves in the larval state under the remains of their solid food—*i. e.*, completely cover themselves with a shield of their own dung. So these you found hide in the remains of their liquid food. They throw out a quantity of liquid within which they are able to form air bubbles, to make a sort of froth, which completely hides them, and under which they can feed and grow without much danger of being discovered by birds or other enemies. In England, this covering is called

Cuckoo Spit and Frog Spittle,

from the notion that the appearance is caused by birds or frogs. Any one who takes pains, like "C. M. M.," to examine the spittle, can learn the whole story. I do not know which particular insect my young friend found, but his likening it to the "Hay-maker" or "Summer Locust" shows that he was on the right track. In figure 1, is given the perfect insect of the most common of the English spittle insects, which presents a great variety of colors—*Ptyleus bifasciatus*. I have a book on insects by a very scientific American author, and some American species with this habit may be given in it, but as its author did not care to have us know whether he had either these or any other insect in his book, he has made no index; hence, his work is of no sort of value, and its nearly 400 pages may almost as well be blank paper, for all the use they are. ..Here is another correspondent, (a young Miss, too,) at Orange, N. J., who has made

Fig. 1.

A Discovery of Another Kind.

Miss Cornelia was transplanting some plants from a window-box to the garden, when she "found these curious little seed-cups growing in the soil." No doubt of the garden, though she does not say so. She says: "I never before saw anything like them; if they are not of sufficient interest for some of your talks, would it be too much trouble for you to drop me a postal, telling me the name of a book which would give me some information

Fig. 2.

about them?"—I often come across these little "seed cups," and they are very interesting things, but I do not know of any common work to which to refer Miss Cornelia, and will, for her benefit, and that of others, "talk" about them. *Fig. 2* shows the appearance of the curious things. As Miss Cornelia's specimens were badly crushed, I give a drawing of some that I found in my own garden. This is of the natural size, and the affair looks much like a little nest with eggs in it, or, as Miss Cornelia has it, "little seed-cups." These "seed-cups" are really plants belonging to the great order of fungi—other forms of which you know, as toadstools or mushrooms. There are several that have the same general appearance as the one figured—a nest or cup, within which are rounded bodies, that have been likened to eggs, or to seeds. Their botanical names are *Nidularia* (little nest), *Crucibulum* (a crucible), and *Cyathus* (a cup). The little bodies within them that have been likened to eggs or seeds are cases holding the spores, or minute dust-like particles, which in these plants answer for seeds. It is said that some of these egg-like bodies in some fungi of this kind explode, and violently scatter their contents in all directions.

I had began to be glad that the questions ran less upon insects and more upon plants, and other objects, when I opened a long letter from "S. A. D.," Lowell, Mass., who is in trouble with his or her ivy.

Ivy Grown in the House

is very apt to be attacked by a scale louse, and that is evidently what is the matter in the case so carefully described by "S. A. D." If my correspondent—whether boy or girl, I have no clue—can command a piece of soft pine wood, or a not very stiff old tooth-brush, all the needed apparatus will be provided. Then two things more are needed:

A Desire and Patience.

By desire, I mean a real wish to be rid of the trouble, and patience will be needed to carry out the means. The microscope has done "S. A D." one good service, as I learn from the letter that it has shown exactly what the trouble is—a scale louse that is for most of the time just fixed in one place—is always *there* if you want to find it, and also when you would prefer not to find it. When it has once fixed itself, it goes on providing for a new brood. Having provided "S. A. D." with the means of warfare—a pine stick or a brush, "he or she" is not the Yankee that I take "him or her" to be if these implements can not be put to good use. You have the scale lice there on the ivy; they will do much mischief if you let them alone. They do not move, but will be there to-morrow and next day, and the day after, but my advice is to attend to them *to-day*. Having a sharp pine stick, or a brush, you can put an end to the trouble; in other words, "kill 'em." I advise a soft pine stick or brush in preference to any other arms, as with these one can easily crush the lice and not injure the leaf or stem of the ivy. You may use soap-suds if you choose, with the brush, but the few times I have had occasion to kill them, I found the dry brush to answer.

The Doctor would like to say a few words to his correspondents, the "Boys and Girls." Some who write for youngsters, call them "My Dear Little Chicks," or, "My Darling Pets." I don't—I mean "Boys and Girls," for I think you will like it best. Well then, Boys and Girls, I would say to those of you who write me, that *I* do not *answer* puzzles. If you have anything to write about puzzles, send it to Aunt Sue, and if worthy, she will be glad to get it, and will treat it in the kindest manner. It is of no use to send puzzles to *me*, for I can't answer them, and wouldn't if I could. Several have written to ask me "if three cats will kill three rats in three minutes, how many somethings can be done in so many thingamys?" I am not sure that I have stated the thing rightly, but it makes no difference. If obliged to answer the problem, I should say if the cats were *my cats*, the number of the rats to be killed would be "lots." If it is of the least earthly interest to you to know any possible relation between cats, rats, and minutes, it is not to me—except to wish as many to be killed as possible—but I have no "minutes" to give to the problem. I only say "go ahead cats." The problem appeared, I think, in Aunt Sue's Department, I don't know how many months ago; and the strange thing is, that of late, several youngsters should send the problem, and ask *me* to answer it! Did you ever hear of Doctor Johnson's, the great dictionary man's, journey in Scotland? He was a very learned man, but was easily bothered over foolish little problems. The story goes that some one proposed to this learned man this problem: "If a herring and a half cost a penny and a half, how many herring can be bought for twelve pence?" It is said that the attempt to solve this problem so soured the temper of the venerable Doctor, that he never could write or speak pleasantly of Scotland thereafter. I am not intending to feel unpleasantly over such matters, but to say that they belong—everything of of the problem or puzzle kind—to "Aunt Sue," and should be sent to her, direct. That I not only know, but care nothing about such questions as this on rat-killing, only the more rats that are killed, the better I shall like it. When you ask me questions about the common things that surround you, when you wish to know anything that I can tell you about, I do not care how many letters you write me. But as everything in the way of puzzles is provided for—indeed you can not please good "Aunt Sue" so well in any other way, as by sending her a regular "pozer"—I must ask just once more all sensible youngsters to send all puzzle matters to her, and *not* to their friend, THE DOCTOR.

Aunt Sue's Puzzle-Box.

SUNDAY ACROSTIC.

(Selected from names or words in the Bible. The first four lines indicate the initial and final letters.)

They quailed upon the brink; behind them rang
The chariots thundering and the horsemen's clang;
Death seemed on every side, but Hands Divine
Smoothed their safe passage o'er the obedient brine.

1. He, like a strong ass, crouching 'neath his load,
   His brethern served, and in fair lands abode.
2. "This place is God's," said Jacob; "here I set
   This pillar, lest his warning I forget."
3. Ah! fatal City! Where predestined war
   Smote the rash monarch in his battle-car.
4. He said,—and stretching to the Queen his hand—
   "Ask what thou wilt, the half of all my land."
5. When conflicts raged, and corpses strewed the plain,
   He sniffed afar his banquet of the slain.
6. Nor cold, nor hot, nor wholly vile, nor pure,
   No strength to strive, no patience to endure.

MRS. OGILVY.

SQUARE WORD.

1. My first, a precious stone, we see.
2. My next an evergreen—a tree.
3. My third the name of lady fair.
4. A metal will complete the square. ISOLA.

CHARADE.

My first all children like,
And older folks as well.
My second most all children like,
As older folks can tell.
Hayes and Wheeler were my whole
Before they were elected.
Tilden and Hendricks were my whole
Before they were rejected. J. H. B.

HIDDEN TREES.

1. The boys made a large bon-fire.
2. They live up in Erie County.
3. O! a kite! a kite!
4. What a hovel my cousins reside in!
5. It was a lonely place, dark and gloomy.
6. Oh! Mamma, please let Eddie go.
7. He may do as he pleases in the matter.
8. Look out for that bee, Charlie! MARION.

SUBTRACTION AND ADDITION.

(Or taking the last syllable from the first word, and adding it to the next—*e. g.*, 1. To clasp. 2. An ornament. 3. An epistle.—Solution—1. Embrace. 2. Bracelet. 3. Letter.)

1. Consideration. 2. Contrariwise. 3. A bird. 4. A room. 5. A slow movement. 6. To neglect. 7. A watercourse. 8. A kitchen utensil. 9. A large rock. 10. Belonging to the skin. TRY AGAIN.

EASY NUMERICAL ENIGMA.

I am composed of 10 letters:
My 8, 4, 6, is to allow.
My 9, 8, 3, 10, is a river in Prussia.
My 5, 2, 3, is to deprive.
My 1, 7, 9, 8, is a dance.
My whole was a Confederate General.
CARRIE D. A.

SYNCOPATIONS.

(Fill the second blank in each sentence with the same word, less one letter, as fills the first blank, without transposition—*e. g.*, The —— was only a —— wide.—The *road* was only a *rod* wide.)

1. He made a —— in the garden with a ——.
2. She said it was her —— to be ——.
3. He told a long —— about some —— he drank.
4. They killed the bat in the mine, and his —— was sprinkled over the ——.
5. The boy tried to —— an egg from the nest of the ——.
6. Then cruelly tried to —— the bird's ——.
7. The —— had a —— on its head.
8. It made him —— to drink the ——, it was so strong.

JOHN W. WHEATLEY.

NUMERICAL ENIGMA.

I am composed of 65 letters:
My 31, 22, 33, 29, 43, 15, 4, 39, 48, 61, 52, 35, 13, 41, 51, 42, 49, 50, 23, 55, 54, is the name of an American poet.
My 3, 35, 26, 13, 54, 8, 29, 7, 10, 17, 21, 14, is a Western city.
My 18, 2, 12, 9, 44, 59, 63, 35, 46, 6, 61, 32, 16, is "bell" in an ancient language.
My 24, 8, 5, 35, 23, is a title.
My 38, 20, 15, 25, 65, was the name of a wicked king who reigned nearly two thousand years ago.
My 53, 8, 37, 1, 56, 54, 30, 47, 27, 35, 61, 58, 11, 48, is a ragged fellow.
My 45, 62, 36, 40, 64, 54, is a near relative.
My 33, 60, 19, 58, 57, 34, is clay,—slate.
My whole is a well-known couplet. EHRICH.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

TRANSPOSITIONS.—1. Care, race. 2. Line, Nile. 3. Pale, leap. 4. Stage, gates. 5. Save, vase.

NUMERICAL ENIGMAS.—1. Good character is gained by many acts, but is lost by one. 2. Shakspeare. 3. Tablecloth. 4. Aunt Sue's puzzle box.

DIAMOND PUZZLE.

Baltimore.

```
    B
   RAT
  CALLA
 PORTAGE
BALTIMORE
 DORMICE
  PROBE
   ORE
    E
```

HOUR-GLASS PUZZLE.

Humbugs.

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ARCHFOE
 CRUEL
  AMY
   H
  SUE
 ANGRY
RANSACK
```

RHOMBOID PUZZLE.

Across.

```
 TOSS
 NOON
 TROD
 TROD
```

Downwards.

1. T. 2. On. 3. Sot. 4. Sort. 5. Nor. 6. Do. 7. D.

BIBLICAL ENIGMA.—Righteousness exalteth a nation.

ALPHABETICAL ARITHMETIC.

341)35679178(104631

(*Key.*—"Logarithms."

CROSS-WORD.—2. Despondency.

HIDDEN RIVERS.—1. Don. 2. Nense. 3. Pedee. 4. Orange. 5. Missouri. 6. Ganges. 7. Colorado. 8. Cumberland. 9. Mississippi. 10. Connecticut.

SYNCOPATIONS.—1. Grain, rain. 2. March, arch. 3. Drill, dill. 4. China, chin. 5. Farm, arm. 6. Stage, sage. 7. Wheel, heel.

SQUARE WORD.

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VEDA
EARL
DRAB
ALBS
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DOUBLE CROSS-WORD.—Oregon, Nevada.

DOUBLE ACROSTIC.

```
R— abine —T
E— limir —A
A— die   —U
D— ayto  —N
I—conocias—T
N—       —O  Reading.
G— ude   —N  Taunton.
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ANSWERS TO PUZZLES IN THE JUNE NUMBER.

ANAGRAMS.—1. Indescribable. 2. Conversational. 3. Mismanagement. 4. Manifestation. 5. Indentation. 6. Conflagration. 7. Interrogation. 8. Affectation.

BIBLICAL DOUBLE ACROSTIC.

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C— ellin —G
O— N   —O
R— ache —L
I— sh   —I
N— apth —A
T— abre —T
H— anna —H
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SQUARE WORD.

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BREST
RIVER
EVENE
SENSE
TREES
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CROSS-WORD.—The Eastern war.

NUMERICAL ENIGMAS.—1. It is not all gold that glitters. 2 (Geographical). Eagle, Waukesha, Wisconsin.

SYNCOPATION AND TRANSPOSITION.—1. Lady—lad. 2. Onion—noon. 3. Hermit—their. 4. Recipe—price. 5. Dairy—yard. 6. Easy—say. 7. Infer—fern. 8. Elude—duel.

Thanks for letters, puzzles, etc., to J. R. W., Hattie H. M., C. B. Riggs, J. J. Harrop, O. L. Rice, Evelyn E. N., Kendrie C. H., John W. Wheatley, Laura Irene B., and to others, whose inquiries I hope to be able to answer at some future time.

Correspondents will save time, if they will address their letters (to Aunt Sue) to Rowayton, Fairfield Co., Conn., from July to December of this year. But please remember that AUNT SUE is *not Orange Judd Co.*; the latter must be addressed at 245 Broadway, N. Y. City.

Aunt Sue's Chats.

J. H. B. sends some magic-squares, for the amusement of our puzzlers, wishing to have the figures, from 1 to 25, arranged in a square of 25 small squares, so that the columns, horizontal, perpendicular, and diagonal, shall each foot up to 65. Instead of giving the problem, I will show how any magic-square of uneven numbers (say 3 times 3, 5 times 5, 7 times 7, and so on) can be arranged correctly, every time. Let us take 5 times 5 for illustration. Begin with No. 1 in the square next below the center; go on downwards, diagonally to the right, until you reach the lowest line; then put the next figure in the top line of your square corresponding to the diagonal of another (supposed) square below. (See No. 3 in diagram.)

11		7		3	
4	12		8	16	4
17	5	13		9	17
10		1	14		10
	6		2	15	23

11	24	7	20	3

When you have written down No. 3, you will again be on an edge, so imagine another square (to the right) and go on diagonally, putting the numbers in your own square just where they would come in another square to the right; the 4 would come in the second horizontal column, first figure to the left, so put it there in your own square. (I trust that the diagram will help my reader to understand my description!) When any figure, already written, blocks you from pursuing your diagonal course, take the next square but one below your last figure. (See 5 and 6.) Go on in this way until you reach the lowest corner on the right, and then always put the next figure in the square next to the top one in the right column (see 15 and 16); then go on as before, and your last number should come on the square just one above the center. I have left some of the small squares blank, so that those

interested in the experiment may finish them for their own amusement. You may make a magic square containing 9,801 small squares, and fill them by the foregoing plan if you choose (?), and it will come out all right.

BETTINE.—I have received a letter from a young lady in Whitehall, Warrenton, Va., about crackers, who writes: "In the May Number of the *American Agriculturist* I see that "BETTINE" did not succeed in making crackers by the recipe in the March Number, and as I know a very good one I send it. * * * * To one pint of sifted flour add one tablespoonful of butter, and one of lard, with either sugar or salt to taste (we think salt the best, but some people prefer sweet things, so you can use sugar if you like); mix with milk-warm water, until the dough is rather stiffer than bread-dough; then beat it until bladders rise, then roll out very thin, and cut into any shape you like, and bake in a quick oven. The only trouble is about the beating; if too much is given, it makes the crackers heavy, and if not enough, they taste like dry paste; but about ten minutes is generally right. I hope 'BETTINE' will succeed, for it is provoking to fail in any cooking.—Yours truly, FLORENCE MILLER."

"MOLLIE" says she has "a lot of jet beads, and would like to know how to make a bead-hanging-basket, or anything else that would be pretty." She wants to know, also, what kind of ornaments are made with fish-scales, and how they are made. Who will tell her how?

JENNIE R. W. wishes I would tell her how to solve diamond puzzles. I know of no better way than to give you a very easy one, and tell you the answer. 1. A consonant (sometimes a vowel). 2. A troublesome animal. 3. Something that every one drinks in some form. 4. A common beverage (much liked by old ladies). 5. A consonant. The central letters, horizontal and perpendicular, name a beverage.—Now you see there are 5 items, so the central words must have 5 letters. Take your slate and mark some little dots on it thus,

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  .
 . . .
. . . . .
 . . .
  .
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to show how many words and letters are required. The first item must be W or Y, but as you are not sure, you leave that and try the next; that must be "rat." So put R A T in the place of the first linq of three (horizontal) dots. Now you have on your slate:

```
  .
R A T
. . . . .
 . . .
  .
```

You think the third item may be "water," but you are not sure; so skip that, and go on to the fourth item. You feel sure that that is "tea," so you write it down.

```
  .
R A T
. . . . .
T E A
  .
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Now you are quite sure that the central perpendicular letters should be "water," so you put it down. All you have to do now, is to fill the horizontal line in the center with the missing letters, and you have your diamond complete. It is a very easy, simple diamond; but it is very complete, because the perpendicular words are *all* the same as the horizontal.

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R A T
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One of our Largest Insects.

Several letters from boys and girls concerning one of our largest caterpillars will be here answered in "a lump." We can not always reply to such inquiries as soon as they are received, as our engravings are planned well beforehand, and it does but little good to talk about an insect, unless we can give a picture of it, so that all hands may know the particular insect we are describing. Last year, "M. T. A.," of Washtenaw Co., Mich., wished to know about a "horrible horned creature," that was found upon the hickory trees in her neighborhood. We do not wonder that she called the caterpillar, for such it is, by such a hard name, for we know of no other among our insects, that looks so formidable as this. Its portrait, when full-grown, is given in figure 1, though it is sometimes nearly an inch longer than the engraving. A young girl is not to be blamed for calling it a "horrible horned creature," for it really looks as if it meant mischief, though it is quite harmless. This caterpillar is a great feeder, and lives mostly on walnut and hickory trees, though it will eat the persimmon and others, and

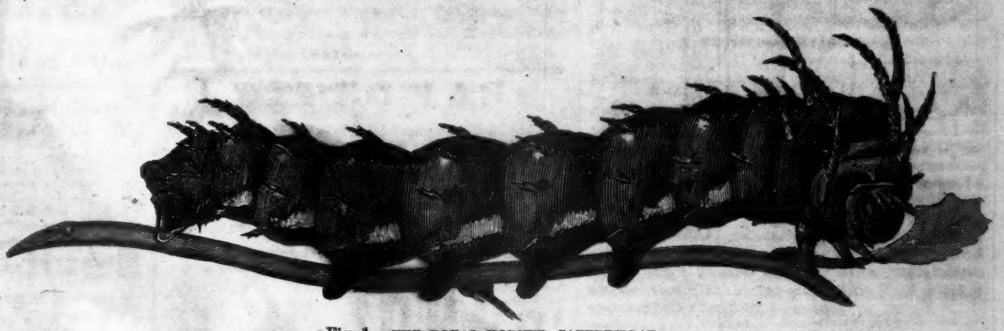


Fig. 1.—THE ROYAL HORNED CATERPILLAR.

when feeding, as with other large caterpillars, its crunching and tearing of the leaves may be distinctly heard. When full-grown, it is of a green color, with a pale-blue band on each ring; the head and legs are orange-colored, as are the long spines, though their tips are black. Probably it is provided with these savage-looking horns, to frighten away the birds, but it can neither sting or prick, and may be safely handled. When it has completed its growth, the caterpillar goes into the ground and forms a chrysalis like figure 2; it remains in this state until the next season, when it comes out in June as a large and beautiful moth, like that in figure 3. This is known as the "Regal Moth", (the larva being the

Fig. 2.—CHRYSALIS OF FIGURE 1.

Royal Horned Caterpillar), and is one of the most beautiful of all our moths. Its general color is orange-red, the light spots on the fore-wings being yellow, and there are markings of dark-red and olive color. The name given by entomologists is *Citheronia regalis*. The insect is never very abundant, but is found here and there all over the country; the first specimen of the moth we ever saw, though we had known the caterpillar, flew into a window of the building when we had our office, many years ago, on Park Row. It had probably perfected itself in City Hall Park, which was directly opposite. If any of you come across this savage-looking caterpillar, do not be afraid of it, even if it does shake itself from side to side; that is the way it protects itself from its enemies—by frightening them. If you wish to raise the perfect insect, provide a box of earth, in which stick leafy stems of the tree on which you find the caterpillar, keeping the earth fairly moist, but not too wet. Give them fresh leaves as needed, and when full grown the caterpillars will usually go into the earth provided for them; then you may put the box away in the cellar, and leave it until next June, when the moth will probably appear. After severe cold weather is over, it will be well to remove the box to the open air, and cover it with a piece of mosquito netting, or some such material, so that when the moths come out, they may not escape.

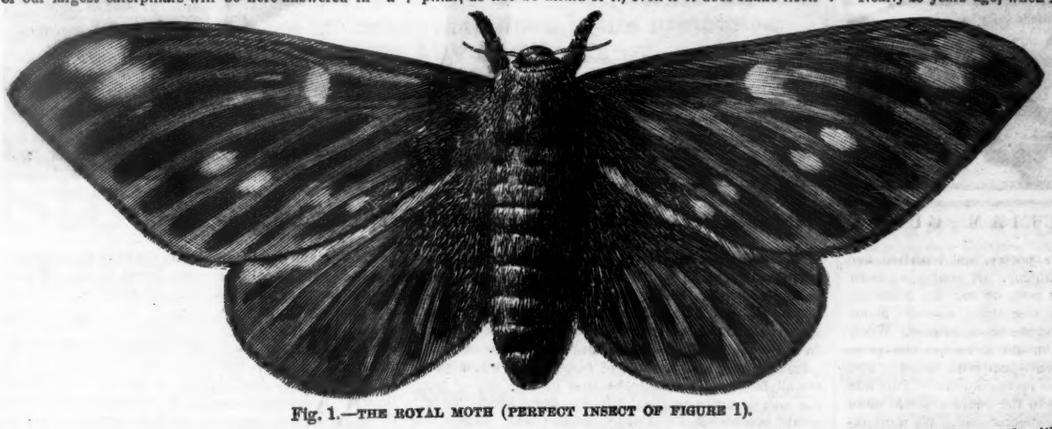


Fig. 1.—THE ROYAL MOTH (PERFECT INSECT OF FIGURE 1).

About Great Men—Bryant.

When I was a youngster, I had an excellent old friend, an Englishman, who was very fond of pictures, and who had many in the house I loved to visit. Among all his pictures, there were but two portraits—Washington and Wellington (perhaps he would have reversed the order of naming them). I once mentioned this peculiarity, the absence of other portraits, when he said that in his opinion these were the only two men who had ever lived whose portraits he cared to keep, and he added: "G——, I will never hang upon my walls the portrait of any *living* man."—How many times have I thought of this! A man so long as he lives is capable of doing something which may make us wish to turn his portrait to the wall. When he is dead, his account is closed, and we may then decide whether we wish to keep him in memory by having his portrait constantly before us. It may be a safe rule, that of my English friend, not to hang up the portraits of the living, but fortunately there are exceptions to this. There have been, and there are men—and women, too—whose portraits we may cherish, for the good that they have done, are doing, and are likely to do. We hear of great men, read what they have said, done, or written, and naturally wish to know what kind of men they are—how they look. This is a very natural desire, and a very proper one. I wonder how many school boys there are who have not spoken from their "speakers," or school girls who have not read from their "readers" that noble poem, beginning:

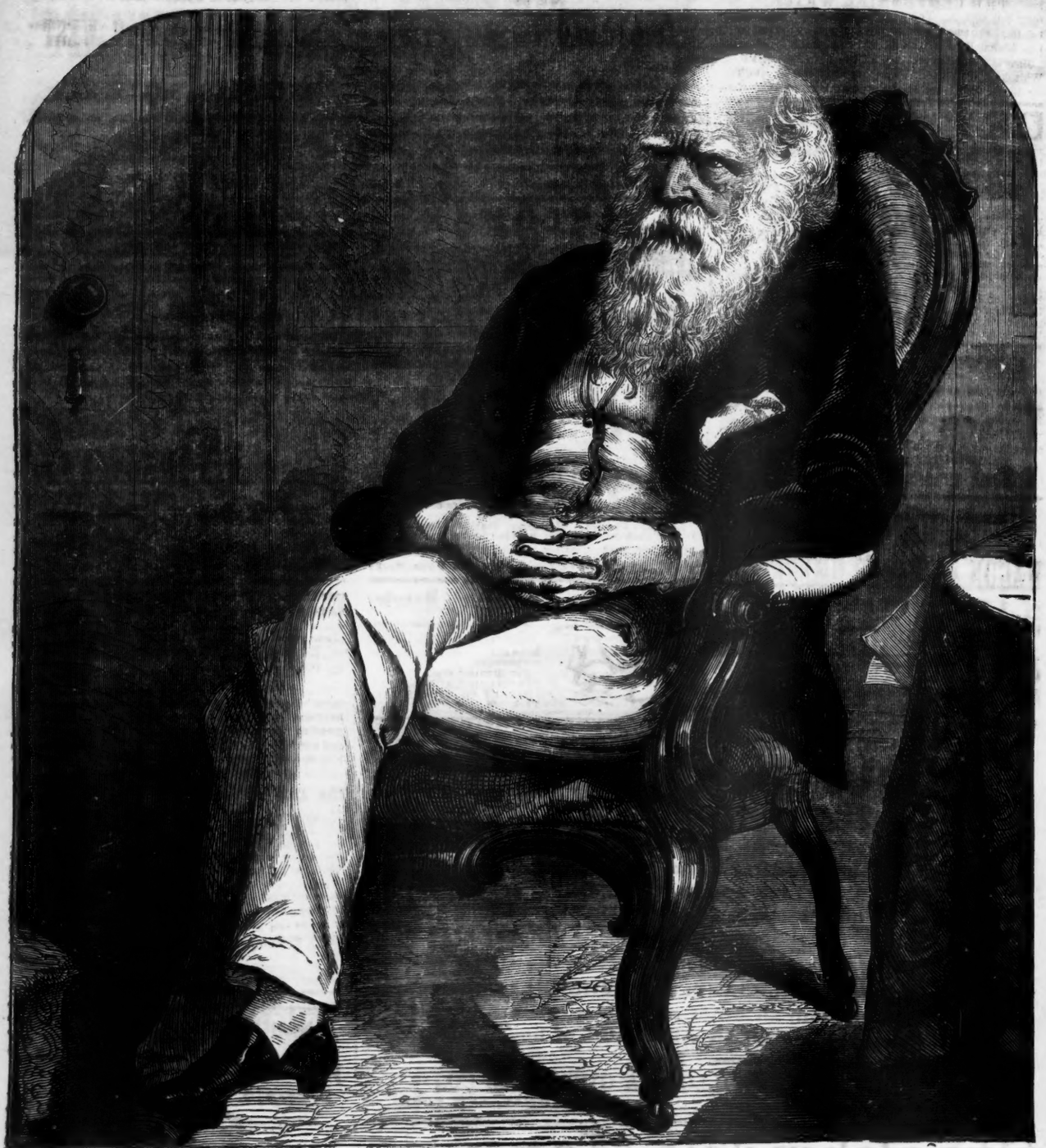
"To him who in the love of nature holds
Communion with her visible forms, she speaks
A various language;"

and ending with:

"By an unfaltering trust, approach thy grave
Like one that draws the drapery of his couch
About him, and lies down to pleasant dreams."

All of you know that this, and other familiar poems, is by Bryant, and naturally would like to know how Bryant looked, and what sort of a man was he, who could write poems that are familiar to young and old.

Nearly 25 years ago, when I first came to live in New York, my residence was in 22d Street. My business was far down-town, but unless it was very stormy, I, for the sake of the exercise, always walked down and up. Almost every spring morning I fell in with an old gentleman, with a long gray beard, flowing gray hair, and a countenance so strongly marked that I knew he must be "somebody." We were both bound down-town—and many a walking race we had. I was fresh from a prairie life, and a lively walker, but this old gentleman was more than a match for me, and often, though not always, out-walked me. All this happened without a word ever passing between us, but when we met, which was very often, there was a silent understanding that we were on a walking-match, and this continued until hot weather set in, when the old gentleman disappeared. That fall there was an exhibition of the New York Horticultural Society at which an address was to be given by William Cullen Bryant. I had a good lady friend who was, like myself,



WILLIAM CULLEN BRYANT.—TAKEN AT HIS COUNTRY HOME, AT CUMMINGTON, MASS.

an admirer of Mr. Bryant's poetry, and I invited her to go to the exhibition with me. Of course we both expected a treat, as such a poet, on such an occasion, could not fail to give us something poetical about flowers. We went, and found the room crowded. When the orator appeared—who should it be but the gray-bearded, gray-haired old gentleman with whom I had walked so many races all the spring months! This was a surprise, but when it came to the address, it was more than a surprise; it was a disappointment. We went expecting poetry, and got only pruning! A more matter of fact, and I will say instructive, lecture on pruning—pear-trees—I think it was, could not be given by one who never in his life read—much less wrote—a line of poetry. Some years later I became acquainted with Mr. Bryant, and found that he knew all about potatoes and pumpkins, even if he did write charming poetry about flowers. A number of portraits of Mr. Bryant have been published, most of them taken in profile, and very hard and rugged. The one here given was drawn by an artist a few years ago, when Mr. Bryant was at his country home in Massachusetts. Mr. B. did not know that he was sitting for his portrait, and to my notion it gives him as he appeared in his home life better than any other. Why do I give you Mr. Bryant's portrait?—For several reasons—first, because he is a writer of poems with which you are all familiar. Secondly, because he was one of the few men in active political life who never sought for or would accept office. Thirdly, as one who, though a strong writer in political controversy, was always a gentleman, and never used other than gentlemanly language. But these are qualities that will not interest youngsters. My main reason is that though he died at eighty-four, he was always a boy—a boy in activity, and a boy in the freshness of his spirits. He was born among the rocks, the hills, and woods, of Massachusetts, and though the greater part of his life was passed in a great city, and much of his thought was given to public affairs, his true enjoyment was found among the rural scenes of his boyhood, and he will be remembered by his "Forest Hymn," his poem on "The Fringed Gentian," his lines to "A Water Fowl," his "June," his "Death of the Flowers," by boys and girls in generations to come, who will perhaps never know that he led an active city life and engaged in the political struggles of his day. I have no doubt that he would prefer to be thus remembered. He was a remarkable example of growing old gracefully. He would not have been what he was, he would not have been honored and esteemed as he everywhere was, had he not preserved his simple habits of country life, had he not cherished the memory of his early country home. The lessons of the woods and fields, the memory of the trees and flowers staid with him and kept his mind fresh and his heart pure all through a long and useful life. Every country boy who seeks a city career, may well study the example of William Cullen Bryant in his attachment to his early home. THE DOCTOR.

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will be ready in **February,** with a colored plate.—Many new and beautiful Plants are offered for the first time, with a rich collection of Greenhouse and Hot-house plants; Bedding Plants; new and choice Roses; Dahlias. Well grown and at low prices. Free to all my customers, to others 10 cts.—a plain copy free.
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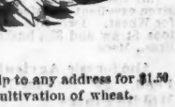
ARTICHOKES

Red Brazillian and White French Varieties, cheapest hog food known. Send for Circular. E. F. BROCKWAY, Ainsworth, Iowa. Say you saw this in *Am. Agriculturist.*

Matthews' Garden Seed Drill,

Matthews' Hand Cultivator,



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EVERETT & SMALL,
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The Hardiest and Most Productive Variety of White Winter Wheat.

THE CLAWSON.

I have a fine crop of over 30 acres of Clawson Wheat. Will clean it carefully for seed, and ship to any address for $1.50 per bushel. New two bushel bags 25 cts. extra. Sample sent free by mail to all interested in the cultivation of wheat.
Address **JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.**

Experiments on Wheat and Grass.

A New and Simple Set of Fertilizers, Costing only $5 per set, Adapted for Testing any Soil for Deficiency in the more Important Elements of Plant Food.

"COMPLETE MANURE SET,"

Designed for Those who Require a Set Requiring the Least Possible Care and Trouble in its Use.

This set consists of only four bags of *uniform weight*, (50 lbs. each), requiring *no mixing* or further preparation, to be applied on *four alternate* strips of Wheat, Grass, or other Crop. May be applied in Drill, Broadcast, or as a Top-dressing by hand or machine.

Bag A, 50 lbs., complete manure, containing the main ingredients in about the same proportion as, but in far more *soluble* and *concentrated form* than, *stable manure*.

Bag B, 50 lbs., same as **Bag A,** with nitrogen omitted.
Bag C, 50 lbs., " " " phos. acid "
Bag D, 50 lbs., " " " potash "

The results from these *four* bags applied in *four alternate strips* will, during an average good growing season, indicate which one or more of the important ingredients Nitrogen, Phosphoric Acid, and Potash is deficient in the soil for growing the crop experimented upon. Full directions accompany each set. Any ordinary farm-hand can apply them. To each bag is attached a tag giving the number of pounds of each ingredient furnished, and the source from which obtained, with guaranteed composition. Bags A, B, C, and D, will be put up in a large bag as "Complete Manure Set."

Price, per set, delivered to cars or boat at New York, **$5.** Price, with plaster omitted, requiring to be reduced in strength by mixing with a diviser before use, **$4.50.** Five sets (ready mixed), will be sent to one address in one shipment on receipt of $22.50. The endorsement of this plan of experiments by nearly all the Agricultural Press, Agricultural Colleges, and Stations, as well as by many prominent agriculturists, has encouraged us to extend every facility in our power, including pamphlets and other descriptive matter calculated to insure its success.

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Send for quotations of Fertilizers and Circulars. *Muriate of Potash* (80 p.c.), furnished by the single ton at $35 *per ton*. For Fertilizers for Grain and Grass Crops see advertisement in *American Agriculturist*, July, inside front cover.

PURE GROUND BONE, ALL GRADES, OF OUR OWN MANUFACTURE.

PERUVIAN GUANO.

Imported direct from Peru, by
HOBSON, HURTADO & CO.,
AGENTS OF THE GOVERNMENT OF PERU,
No. 63 Pine St., New York.

No. 1 Peruvian Guano—10 p. c. Ammonia Standard.
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The "Lobos," containing 6 per cent Ammonia, 15@20 per cent Phosphoric Acid, and 3@5 per cent Potassa, is the best and cheapest **general Fertilizer** in the market, being admirably adapted for Cereals, Corn, Root Crops, Sugar Cane, and Cotton.

Circulars sent free on application.

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DEALERS IN
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Just received—a lot of finest quality Texas Raw Bone—superior to any in the market.

Sample free on receipt of address.

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An indispensable article for picking choice fruit and flowers. Send for circular.
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Price Lists with full particulars on application.
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WHEAT.

A Great Instructive Experiment

will be made this Fall to prove whether or not the lack of

BONE

in the soil is the cause of poor yields of Wheat and failure of Grass Crops. The application to wheat and grass of the Pure, Clean, Raw, Odorless, and Fine Ground Bone known as Premium Bone, has so clearly proved that Bone element is the great need, that we believe Farmers should make a wide extended experiment on a great variety of soils throughout the Union.

Out of what is the grain of wheat made? What are the proportion of its elements? What are they?—Wheat is made out of Atmosphere and mineral or soil elements, in the following proportions:

Atmosphere (free to man)	19,000 parts.
Phosphoric Acid (Bone element deficient in all soils showing exhaustion)	498 "
Potash (seldom deficient except on soils under culture for a long period of years)	237 "
Magnesia (enough in the soil for a long period of years)	120 "
Soda (common salt element)	91 "
Lime (in bone in its purest state)	28 "
Silica (sand)	16 "
Peroxide of Iron	7 "
Sulphuric Acid	3 "
	20,000 parts.

19 parts of wheat is atmosphere. 1 part of wheat is mineral or soil element. ½ of the mineral elements is Phosphoric Acid. Every ton of Premium Bone contains 560 lbs. Phosphoric Acid. Every bushel of wheat contains 3-5 of a lb. of Phosphoric Acid. A ton of Premium Bone contains enough Phosphoric Acid to supply 933 bus. wheat, and a ton of Premium Bone being made from Raw Bones (not steamed or burned) supplies to wheat 100 lbs. Ammonia. Unless land has been cropped a very long time, there is no necessity for supplying anything outside of common manure, except Premium Bone. Farmers, write at once for terms for wheat seeding to

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after 10 years test, has proved its superiority over all others, by its great exhibition of strength and durability, combined with cheapness and ease in pulling all classes of stumps. The Company's challenge of $1,000 for a stump machine which would excel theirs, has stood since 1867 without being taken. They build 6 different sizes of machines, to pull all kinds of stumps. They make Subsoilers and Ditching Plows. For Particulars, Prices, etc., address THE CHAMBERLIN M'F'G CO., Olean, N. Y.

Montgomery's Imp. Rockaway Fan!

210 Premiums. **15 Silver Medals.**

No good Farmer can afford to be without one. Victorious at every State and County Fair where exhibited, and is the best and cheapest Fan made in the Country for the Farmer and Planter.

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Endless Chain Horse Powers,

for one, two, and three horses, are the best made. They have steel track rods, wrought iron links, and for strength and durability are unsurpassed.

Our Improved Governor regulates the speed perfectly. We also manufacture Drag and Circular Sawing Machines.

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HEEBNER'S HORSE POWER
WITH
PATENT LEVEL TREAD
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SPEED REGULATOR.

Heebner's Improved Threshing Machines. Send for Illustrated Circulars to
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20 BALES PER HOUR.
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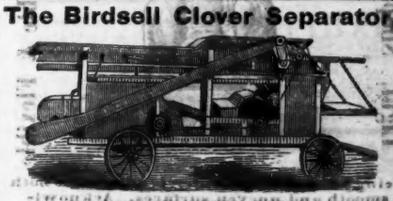
Power Corn Shellers and Cleaners.
AURORA, INDIANA.

The Birdsell Clover Separator,



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Illustrated Circulars sent free.

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Puts 10 tons in a common Car. Portable as a wagon.
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RANDOLPH'S NEW DITCHER,

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For Plantations and Oil-Mills. Used by Planters, the Oil-Mills in New Orleans and through the country. Send for Circulars and Judges Report. Pay for itself in a few weeks.
D. KAHNWEILER,
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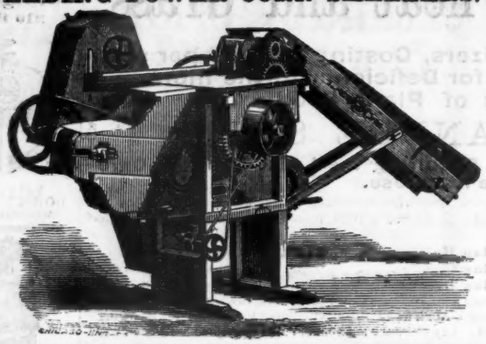
Strong, reliable, thorough in all parts of their work, (shelling, separating, cleaning, and elevating). Perfect self-feeders, and best machines for mill and warehouse purposes, as well as for farm and plantation. Their superiority attested by twenty years' use in the heavy corn-growing sections, during which time they have received first premium at all State and World's Fairs wherever exhibited.



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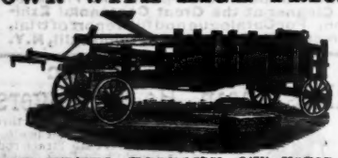

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New Standard Flouring Mill.
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Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 36-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address, Estate of

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Light, Simple,

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Being jointed in the center, is adapted to both smooth and uneven surfaces. Acknowledged the best of the kind, and will pulverize and cover seed better in one operation, than going over twice with others. Made with both Chilled Metal and Cast Steel Discs polished. Send for circular and price list. Manufactured by

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"THE AQUAPULT," a new and greatly improved Fire-Extinguisher, Garden Engine, Window and Carriage Washer, Tree, Vine, and Shrub Protector from Insects, etc., for starting Aqueducts, and various uses which readily suggest themselves. No Dwelling, Factory, Railroad Station or Wooden Railroad Bridge or Conduct should be without one of these valuable articles. Weight, with hose, 5 lbs.; throws water 60 feet. Price, $9.00 each, sent by express, C.O.D. Manufactured by W. & B. DOUGLAS, Middletown, Ct., the oldest and most extensive manufacturers of Pumps in the world. Branch Warehouses, 55 and 57 John St., New York; 197 Lake St., Chicago, Ill.

GARDEN ENGINE AND FIRE EXTINGUISHER.—Protects Buildings from Fire, and Trees, Vines, etc., from Insects. Throws water 50 ft. Easily carried. No Dwelling, Country House, or Factory should be without the Fountain Pump. Send for large Illustrated Circular. J. A. WHITMAN, Sole Proprietor and Manufacturer, Providence, R. I.

W. S. BLUNT'S UNIVERSAL FORCE PUMPS.

Secured by letters patent.

These pumps have enormous power, and are for the house or for **out-door wells** of any depth. They are constructed with special regard to strength, ease of working, and durability. They can be immediately changed from lift to force pumps, and the air chamber can be revolved, so as to allow the handle to work at any desired angle with the spout. Having close tops, they cannot be tampered with. Attention is called to our new elegant pattern **DEEP WELL non-freezing FIRE PUMP. Also, Blunt's Sand Vacuum Chambers.**—A complete protection against sand or gritty water in **dug or driven wells, pits, mines, and rivers.** For **hand or steam pumps,** all sizes, from 1¼-inch to 4-inch suction pipe.

Send for circulars to

NASON M'F'G CO., 71 Fulton and 71 Beekman St., New York.

Western Agency, **Chas. W. Newton,** 150 Lake St., **Chicago.**

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The only wind-mill awarded **TWO MEDALS** and **TWO DIPLOMAS** by the **CENTENNIAL JUDGES.**

Every machine warranted to be well made of good material; to do good work in any kind of wind; to be perfectly self-regulating; to possess more power, and to be more reliable than any other wind-mill made. Each piece is fitted and numbered, so that a stranger can put the mill up, using our drawings and printed instructions for a guide.

Send for **CATALOGUE "A"** and Price List.

U. S. WIND ENGINE & PUMP CO.,
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WE BUILD THE STRONGEST WIND MILL in the WORLD.

(13 SIZES.)

For farm pumping, irrigation, drainage, grinding, and all power purposes, from 1 to 30 horse-power. Circulars free.

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TOWN and COUNTY privileges for making **Driven Wells** and selling Licenses under the established **American Driven Well Patent,** leased by the year to responsible parties, by

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Cucumber Wood Pumps

For Wells and Cisterns.

Agents Wanted. Send for Circulars.

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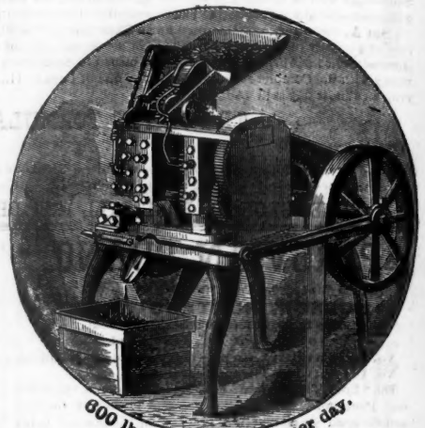
THE GLOBE NAIL.

THE BEST HORSE SHOE NAIL EVER MADE.

About ten years ago the **GLOBE NAIL COMPANY of Boston,** put on the market the first pointed, polished and finished Horse Shoe Nails ready for driving. Previous to that time all Horse Shoe Nails were pointed, and most of them made, by the shoers in their own shops at the rate of but six pounds per day.

The **Globe Nail** was at once found to be much cheaper and better than any then in use. It soon became so popular that all manufacturers of Horse Shoe Nails were compelled to make their Nails to resemble the Globe. For the last ten years it has been the model. Each year the Nail has been greatly improved in quality, and to such a point have we educated the shoers that now they will hardly use a nail unless it is absolutely perfect.



600 lbs. Finished Nails per day.

At the Centennial Exposition in Philadelphia, we were awarded the Medal and the following report, far stronger than that given upon any other Nail:

INTERNATIONAL EXHIBITION, 1876.
U. S. CENTENNIAL COMMISSION.

[BUREAU OF AWARDS.]

PHILADELPHIA, June 22, 1876.

No. 239, Globe Nail Co., Boston, Mass.:

Horse Shoe Nails, Pointed, Polished, and Finished. The uniformity in size, smoothness of finish, hardness and tenacity of the iron, closeness of fibre, and excellence of the head and point, the tensile strength of body, and riveting properties of these Nails, unite in making them of the very highest class of manufacture.

Recommended for an Award of Merit.

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CHARLES STAPLES, Portland, Me.,
G. L. REED, Clearfield, Pa.,
DAV. McHARDY, Aberdeen, Scotland,
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} Group Judges XV.

We annex a sample of the testimonials we receive daily from all parts of the country:

ST. LOUIS, MO., June 8, 1877.

GLOBE NAIL CO., BOSTON, MASS.

Gentlemen: Find enclosed advertisement and postal card concerning your Nail. [Referring to a scurrilous advertisement and postal card, disparaging the Globe Nail, circulated by a rival manufacturer over the humbug signature of "Humane Society for the Prevention of Cruelty to Animals." No Society bearing that title ever existed.] As I take a great interest in the prevention of cruelty to animals,—horses in particular,—I desire to say a few words in favor of **The Globe Nail.** Though I am not a very extensive Horse Shoer, yet I have used enough Nails of the different makes to speak knowingly. I have used the Globe Nail in my shop and on the race track for six years, on all classes of horses, from the heavy draft horse to the tender footed running horse; and I can safely say **it has no superior in point of Toughness, Shape, and Finish, if it has any equal.** I have used about fifteen hundred pounds of Globe Nails a year for the last six years, and in that time I have found four imperfect Nails, two of which I returned to you about two years ago and received in return four perfect ones, for which accept my thanks. If my men had no better sense than to drive those imperfect Nails in a horse's foot, I would not consider it the fault of the Nail if the horse was lamed. If bosses would look more to the competency of their men and less to trying to get shoeing nails a few cents a pound cheaper, we would have fewer lame horses. **I know for safety and durability, with a man who understands his business to drive them, your Nails can't be beat!** I am willing to pay, without any suit, for all horses that are lamed in my shop by using the Globe Nail. As long as it is made as at present, I shall continue to use it, even if I could get other Nails for nothing. I consider it the safest Nail that was ever driven in a horse's foot.

Yours Very Respectfully,
(Signed) P. H. O'NEILL,
Horse Shoer, No. 1007 Broadway.

P. S.—I think I could get every boss in St. Louis to sign this if I thought it necessary. P. H. O'N.

The best Horse is sure to win. SO CLEAR THE TRACK FOR THE

GLOBE NAIL CO.

Three Most Important Works.

Winter Greeneries at Home.

By REV. E. A. JOHNSON, D.D.

FINELY ILLUSTRATED. 12mo. PRICE, POST-PAID, $1.00.

This work differs from most other works on winter gardening in giving the results of actual practice. The title Winter Greeneries better expresses the scope of the work than would that of Window Gardening. All can make their rooms cheerful with green, while to successfully cultivate many flowers requires more skill than the majority of people possess; still flowers are not omitted. A small but judicious selection of easily-procured and easily-managed plants is given, with which to enliven the greenery.

House Plans for Everybody.

By S. B. REED, Architect.

PROFUSELY ILLUSTRATED. 12mo. PRICE, POST-PAID, $1.50.

This is a valuable work which meets the wants of persons of moderate means, and we predict that it will prove one of the most popular architectural books ever issued. It gives a wide range of design from a dwelling costing $250 up to $8,000, and adapted to farm, village, and town residences. Nearly all of these plans have been tested by practical workings. They provide for heating, ventilation, etc., and give a large share of what are called Modern Improvements. One feature of the work gives it a value over any similar publications of the kind that we have seen. It gives an estimate of the quantity of every article used in the construction, and the *cost* of each material at the time the building was erected, or the design made. Even if prices vary from time to time, one can, from these data, ascertain within a few dollars, the probable cost of constructing any one of the buildings here presented.

TALKS ON MANURES.

By JOSEPH HARRIS, M. S.,

Of Moreton Farm, Rochester, New York. Author of "Walks and Talks on the Farm," "Talks on Farm Crops," "Harris on the Pig," etc.

12mo. PRICE, POST-PAID, $1.50.

In the present work Mr. Harris continues the talking style which he has made entirely his own in agricultural teachings. He also continues our acquaintance with the "Deacon," the "Doctor," and the "Squire," and others of his neighbors who have been made, through the medium of these Talks, almost as well known as the author himself. While we have no lack of treatises upon artificial fertilizers, we know of no recent work in which the main stay of the farm—the manure made upon the farm—is treated at all satisfactorily or thoroughly. If this work should do nothing more than convince farmers throughout the country that the value of manure depends upon the quality of the food they feed, rather than upon the kind of animal that eats it, it will accomplish much.

But it does a great deal more than this; starting with the question,

"What Is Manure?"

it runs through in sufficient detail every source of manure on the farm, discussing the methods of making rich manure; the proper keeping and applying it, and especially the

Uses of Manure,

and the effects of different artificial fertilizers, as compared with farm-yard manure, upon different crops. In this the author makes free use of the remarkable series of experiments instituted years ago, and still continued, by Lawes and Gilbert, of Rothamsted, Eng. The

Remarkable Tables

in which the results of these experiments are given, are here for the first time made accessible to the American farmer. In fact, there is scarcely any point relating to fertilizing the soil, including the suitable manures for special crops, that is not treated, and while the teachings are founded upon the most elaborate scientific researches, they are so far divested of the technical language of science as to commend themselves to farmers as "practical" and inhospitable to science as the Deacon himself. The book should have a hearty welcome from every farmer, except the fortunate few who cultivate soils, the natural fertility of which is not yet exhausted.

Any of these three books will be sent post-paid on receipt of the price.

Orders from the trade will be supplied in succession as received.

ORANGE JUDD COMPANY, 245 Broadway, New York.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 287.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.60 per volume.

Bitter Butter.—"Mrs. C.," Rockland Co., N. Y. The bitterness of the cream and the butter may occur from several causes. The cows may not be in perfectly good health; the feed may be in a condition to produce the flavor, or the weather may have this effect. A pinch of powdered saltpetre added to each pan of milk when it is put away, may prevent the bitter flavor.

Spots in Eggs.—"Barter." It is not unusual to find small reddish globules in Brahma eggs. We do not know the cause, and take no notice of it in our own case. When fowls are preparing to moult, the new feathers appear as small nodules in the skin. This is probably what you have observed in your fowls.

Cow Holding back her Milk.—"E. H." Atlanta, Ga. When a cow holds back her milk, there is no way to compel her to let it down, unless her attention is attracted elsewhere. By the use of milking tubes we have been able to draw all the milk from a very obstinate cow. Probably from the absence of the usual handling she did not suspect she was being milked.

When to Sow Timothy.—"O. M. Y." Monroe Co., W. Va. Where the winter is mild, it is safe to sow Timothy seed in the fall; where it is cold, there is danger of unfavorable exposure. Fall sowing is preferable to spring sowing, as the risks of the spring and summer are the greater. Yet spring sowing is very successful when the weather is favorable. When grass seed is sown alone, we would choose the spring rather than the fall. It is rarely that a good catch is missed when the ground is newly plowed, and the seed thoroughly well harrowed into the mellow soil in the spring. The earlier grass, or clover seed, is sown in the spring, the better.

Clogging of a Water-Pipe.—"J. L. M." Wash'n Co., Pa. If it is possible to avoid spilling milk in the milk trough, it would be the best way to prevent the clogging of the pipe which carries off the waste. If this can not be avoided, we would suggest that the "fountain force pumps," made by Whitman, of Providence, R. I., be procured and used once a week for a few minutes to force water through the pipe in a rapid stream, by which sediment would be washed through. This force pump is very useful for clearing drain pipes of all kinds.

Value of Poultry in the United States.—"Subscriber," Attleboro, Mass. The statement that the value of the annual product of poultry in this country is greater than that of hay, corn, cotton, or wheat, is absurd. Any person who has a moderate acquaintance with what is going on about him, can make a pretty near estimate of the value of the poultry product. For instance, there are *four million* families in the country, and many of these do not keep fowls. Few persons produce over $20 worth of eggs and poultry in a year: and if the average product were taken at $20 for each family, the utmost total value of the yearly income from poultry would be only $40,000,000.

Feeding Roots.—"G. H.," Schoharie Co., N. Y. Roots are fed either sliced or pulped. Machines are made for cutting large quantities. Smaller quantities may be chopped with a sharp spade, in a box.

Hemlock Boards for Granaries.—"F. H.," Bangor, Kans. It is held that hemlock boards are the best for granaries, because the timber is so full of splinters, that rats find difficulty in gnawing through it. A double-boarded floor is better than a single plank floor, because the joints are broken, and mice and rats, in gnawing through a joint of a double-boarded floor, are obliged to stop half way, when they could go right on through a plank.

Keeping Unhusked Corn.—"T. K.," St. Jo., Mo. When corn is cribbed with the husks on, the husks gather dampness in wet weather, and if the corn is not perfectly dry when cribbed, it moulds. It is better to husk the corn before it is cribbed.

Preparation of Bones.—"C. A. J.," Davidson College, N. C. Making superphosphate of bones by using sulphuric acid, is only dangerous as a sharp axe is; care in handling is all that is necessary for safety. Bones can be reduced to plant-food more readily, however, by composting them with stable manure, or with muck. Even large whole bones will be reduced to a fine powder, and their constituent parts become plant-food, after six months in a properly prepared compost.

To Mend Iron Pipes Burst by Frost.—"D. & C.," Willowdale, Col. A burst pipe may be repaired by wrapping it very tightly with a strip of tarred canvass, or covering the injured part with a piece of sheet rubber, and then wrapping it firmly with copper wire or tarred cord.

Potato-Bugs Made Useful.—Aunt Sue passes her summer months on an island in Long Island Sound, where she follows fishing, shooting, and other out-door exercises that many women might, but do not. We let her tell her experience in her own way: "I have found a use for potato-bugs: Eureka! The other day a young lady said to me, 'Aunt Sue, let's go for black-fish.'—'Come along,' said I—'but have you got any *fiddlers* for bait?'—'Yes—a few.'—On our way, to the boat, we passed a potato-patch; and, of course, there sat the potato-bug. Said I, 'Fannie, I'm going to try some of these potato-bugs for bait.'—'Oh! do you believe the fish will touch the vile things?'—'We can but try.'—I fished with two hooks—baited one with a fiddler, the other with a P. B.—Up came a big flounder. 'Fannie! he chose the potato-bug!'—'No!'—'Yes!' ....A glorious pull!—Up came a big black-fish, and *he* elected the P. B. 'Tell the *American Agriculturist!*' said Fannie.—'I will,' I replied.—Hence these lines (these fish-lines).—Yours exultantly, AUNT SUE."

Fine Bone or Superphosphate.—"H. W.," Lime Mountain, Pa. If the fine bone-flour is used, there is no need to add sulphuric acid, the plant-food of the bone being sufficiently available without reduction by the acid, for light soils. And composting with stable manure for 3 months, will fit it for any land.

How to Accustom Colts to the Halter.—A correspondent from Delaware gives the following directions for breaking colts to the halter: Put a head-halter on the colt. Never halter it around the neck, because when frightened it is apt to pull the neck out of place, which has happened in many instances. Secure the halter to the manger; allow no more length of halter than will permit the colt to lie down, lest it should become entangled. Halter it about half an hour in the daytime; increase the time upon second and third days, then let it remain haltered all night; go and see it a few times before retiring. By this method I accustomed one to the halter at six months old with success.

Removal of a Ram's Horn.—"P. F. L.," Tuolumne Co., Cal. If the horn is about to destroy the ram's eye, the end of it must certainly be removed. If cut off with a fine saw 2 or 3 inches from the head, it is probable that the ram will suffer no injury nor any inconvenience. If the horn should be hollow there, a horn plug should be inserted, cut off level, and the end touched with a hot iron, which will fasten the plug in its place securely to the horn.

Old Pasture—Irregularity in Milk.—"M.," Hamburgh, N. J. To renovate the apparently exhausted pasture, you should plow under the "five-finger, running blackberries, sumach, etc.," with a strong team. Then sow rye—with which you might use some of the commercial fertilizers—plowing it under just before it would be ripe enough to harvest. Then the land would probably be in good condition to raise any crop by use of manure.—The falling off in quantity of milk, in the morning, twice a week, *may be due to the cow's being milked by other parties*, or possibly from failure to get water.

Wool-tying Box.—"M. M. C.," Davenport, Iowa. Descriptions and illustrations of wool-tying boxes were given in May, 1872, and June, 1877.

Blue Devils is the popular name for a very handsome weed, of which the botanical name is *Echium vulgare*. It is very abundant in Virginia and the Middle States, and has gradually worked its way northward. In a recent visit to Orange Co., N. Y., we saw several places where it had become well established. It is scarcely less to be dreaded than the Canada Thistle, and we warn all those, upon whose farms it has obtained a foot-hold, to prevent its spread. Otherwise they will be looking out for new farms, where this pest is not known. "Blue Devils, *Echium vulgare*, "Canada Thistle," *Cirsium arvense*, "Toad-flax," *Linaria vulgare*, and "Horse-Nettle," *Solanum Carolinense*, are the weeds that are most to be dreaded by farmers of the Northern and Middle States. The farmer or the weed will have possession of the soil. There can be no compromise; it must be a successful fight, or a surrender.

Railroads in the United States.—Interesting and suggestive figures are given in "Poor's Railroad Manual" for 1878. At the close of 1877 there were in operation 74,112 miles—about enough to make three continuous lines around the world. Six years previous, there were only 44,614 miles, an increase of nearly 30,000 miles within the present decade. (We remember riding on one of the first railroads, 20 miles long, consisting of flat strips of iron, like wagon-tire, spiked on the top side of scantling string pieces). What a saving of wagons and horse-flesh these 74,112 miles of railway effect!.... The cost of these railways is set down at $4,568,597,248. The total value of the farm lands in the United States, by census of 1870, was $9,262,803,861. Thus, then, the cost of the railroads would buy half of all the farms in the country. Take away these railroads and the value of the farms would doubtless be diminished fully one-half or more....Those jealous of the railroads, should note that while the value of farms and the property has been doubled and quadrupled by the railroads, those who have furnished the money to build the roads get a poor return. The profits of running the railroads during 1877 were $170,976,697. This is only a little over 3½ per cent on the money invested in them. In 13 States the railroads paid no dividends (viz., Col., Fla., Iowa, La., Minn., Miss., Mo., Neb., Oregon, Tex., and Vt.)

New Process Flour.—"A. G. A.," Florence, Mass. A few months ago the so-called new process of grinding wheat was described in the *American Agriculturist* at length. It is simply a double grinding; the first separates the bran, the stones being set as wide apart as possible, and breaks the kernel into coarse fragments. These are sifted from the bran and re-ground. By this process the second layer of the grain, is all retained in the flour, to the great improvement of its quality. In ordinary grinding, this second shell goes out with the bran as middlings, and is lost to the flour.

Making Cheese.—"Young Housekeeper," Harrington, Conn. In the *American Agriculturist* for Sept., 1875, is an article fully describing two methods of making cheese, with accurate measures of the quantity of rennet to be used, the mode of preparing it, and how to handle the milk for cheeses of particular size.

Bone-Ash, Bone-Black, or Bone.—"R. R.," Baltimore Co., Md. Bone-ash has no organic matter, but often contains as high as 40 per cent of phosphoric acid. Bone-black contains no nitrogen, but has about 30 per cent of phosphoric acid. Of the two, bone-ash evidently possesses the highest value: either, to be of much use, should be treated with acid, or better for the farmer, composted with stable-manure or muck for three to six months. Pure bone contains from 2 to 4 per cent of nitrogen, and about 20 per cent of phosphoric acid. This is perhaps the best form of the three for farm use, on account of the nitrogen, and because it is readily decomposed in a light soil, or in a compost heap.

Value of Gas Lime.—"A. J. H.," Crawford Co., Pa. Gas lime, when fresh, is positively injurious to vegetation. After exposure to the air for a time, it is useful as a fertilizer, but bears no comparison with barnyard manure in this respect. After gas lime has remained exposed for a year, 50 bushels to the acre may be used upon heavy land prepared for fall grain and grass, or for corn.

Draining of a Springy Meadow.—"P.," Ridgway, Iowa. A ditch, as a matter of course, should have its size fixed with reference to the quantity of water to be carried off. It is better to make it too large than too small. Its depth will depend upon the lay of the land, the fall required, etc. A width of 4 feet may be necessary in soft soil, the sides to slope to 2 feet wide at the bottom. With a good fall this would carry off a large quantity of water flowing only one inch deep. In throwing out the earth, it is best to have it all on one side of the ditch, as it can then be removed easily, and if the ditch needs widening there will be no earth to move twice.

Butter Factories.—"D. McN.," New Brunswick. A butter factory for 100 cows could not be carried on so profitably as one for 600. The cost of the ground, building, churns, labor, fuel, water, and many other things for the small factory, would be equal, or nearly so, as those for the larger one, while the returns would be but one-sixth. Still, where the number of cows is limited, it will pay better to churn for 100 in one factory than in 10 or 12 farm houses. Plans and estimates for creameries would, perhaps, be furnished for a reasonable compensation by O. S. Bliss, Secretary of Vermont Dairymen's Association, Georgia, Vt.

Typhoid Pneumonia.—"P. K. S.," Durham, Me. The symptoms which occur in a case of this disease are a changeable pulse, eyes dull and prominent, cold horns, excrement dark, bowels sometimes constipated, and at other times loose; loss of appetite, dullness and disinclination to move, and a dry, hot muzzle. When opened after death the lungs are found dark in color, and the stomach and intestines are dark-green, or lead-color, with the skin or membranes so nearly decomposed as to loosen and become detached at a slight touch. This disease is very virulent and difficult of cure.

Pruning Evergreen Hedges.—"S. G. H." It all depends upon the condition of the hedge. If the hedge is young, and it is desired to promote its growth, a trimming of superfluous shoots in October will be all that is needed. On the other hand, if the hedge is well established, and it is necessary to check its luxuriance, new shoots may be cut back early in June, in addition to the October pruning to preserve the proper shape.

Fourteen Thousand New Books, written by Ten Thousand different Authors, are reported to have been published in Germany during 1877, of which 2,400,000 copies were printed, or an average of only 171 copies of each new book, and only one copy of the whole number for each 20 inhabitants. Statistics show that only one out of each 50 of the people bought one of these new books. About half of the 2,400,000 copies printed were sold outside of Germany. On an average, then, these German Authors had only 86 readers among their countrymen. There were, however, some six million Almanacs printed, and these are usually larger than with us.

The "White Grub" and Strawberries.—Here comes a most pitiful letter from Pictou, Nova Scotia, to the effect that if the ravages of the "Grub" can not be stayed, they must give up the culture of the strawberry. It is the same sad story that we get every year from various quarters. "The first intimation that we have of the mischief is by the plant suddenly wilting, and if taken up at once he (the grub) is found at the roots." Then, of course, follows a request for a remedy. Our White Grub is the counterpart of the *Hanneton*, such a pest to cultivation in France, and for the destruction of which the Government some years offered a prize, which has not yet been awarded. Our "White Grub" is the larval state of the common "May Beetle" (*Lachnosterna fusca*), which bounces about our rooms in the evenings of May and June. The grubs are usually three years in the ground before they come out in the perfect or beetle form, and it is probable that most of their mischief is done in their last year, when they destroy everything that comes in their way—even nursery trees as large as one's finger. They have many natural enemies, but enough survive these to make them in some places a calamity. All that our Picton friend can do is, when a strawberry plant wilts, dig for and find the grub, and prevent that one from further mischief or increase. When the perfect insects, or May-bugs, are abundant, they generally collect on fruit or other trees, from which they may be shaken in early morning, caught on cloths, and destroyed. If the grubs are found abundant in the soil in plowing or spading, it will pay to employ children to pick them up as they are exposed by turning the soil. Thus far, these mechanical means are the only ones known for the reduction of this most serious pest.

Protection for Trace-chains.—"T. P. B.," Evansville, Ind., describes a little "Yankee notion" that is used "out West" to keep the trace-chains from rubbing the shoulders, sides, and legs of horses when plowing, harrowing, or to the wagon.—"We get worn-out gum-hose; about 1-inch hose is the proper size to take in a trace-chain. It costs nothing, as our city friends are always glad to get rid of leaky hose. We cut this hose in pieces to fit; one from the hame to the back-band, another piece from the back-band to within a foot of the single-tree, taking four pieces to rig each horse. It works like a charm. The horse will not have a hair amiss if worked with chains thus enclosed."

His Compost Heap.—A correspondent in Ontario refers to the article in June last headed "A Warning to Every Housekeeper," which refers to the common neglect of privies, and asks if he is to apprehend danger from his compost heap, in which he prepares manure for his garden. The use of dry earth, as suggested in that article, will prove equally efficacious with the compost heap. If, after turning the heap, the surface is covered with a few inches of dry earth—sufficient to prevent the escape of unpleasant odors—we do not think that any gases will arise from it detrimental to the health of his household.

When a Cow Comes in Season.—"J. F. H.," Louisville, Mo. As milk is a more valuable product than the calf, the object should be to make the season of milking as long as possible. A cow will generally come into breeding condition in three months after calving, or, if well fed, sometimes in two months. By keeping the cow from breeding for three months we have about ten months of milking, and can give the cow two months rest. In general, this plan is the most desirable.

Cotswold Sheep and Angora Goats.—"R. D.," Pittsburg, Pa. It is a mistake that some people make to suppose that the Orange Judd Co., or the editors of the *American Agriculturist*, deal in, or sell seeds or live stock of any kind. No persons officially connected with the *American Agriculturist* has anything to sell excepting their own farm produce in the ordinary way in the markets. The advertising columns of this Journal contain in the course of a year the names of persons from whom almost anything can be purchased—from a copper-toed shoe or a watch-key up to steam-engines, farms, live-stock of all kinds, and other things large and small, too numerous to mention.

Hard Lump in a Teat.—"E. C. W.," Montcalm Co., Mich. To treat a hard swelling at the base of a cow's teat, apply twice a day about a teaspoonful of a mixture of Glycerine, 7 parts; Iodide of Potassium, 1 part. If the iodide does not readily dissolve, add a little water to the mixture. A small quantity of this should be poured into the palm of the hand, and rubbed about the swollen part, using gentle pressure and kneading.

Salt for Animals.—"H. M. J.," Milwaukee, Wis. It is better to give horses, sheep, and cows, a daily allowance of salt, by placing a supply where they can themselves procure what they want. Otherwise they may be supplied once a week on a certain day and at a regular hour. Saturday evening is a good time for this.

Dysentery in Pigs.—"J. B. H.," Mount Holly, N. J. This disease is frequently caused by close confinement in warm weather. When swine are confined in pens, they should be kept clean, cool, and thickly bedded with dry earth. Some green food should be provided daily. To treat the scouring, give a teacupful of linseed oil to an old pig, or a tablespoonful to a young one, and repeat the second day. Then give, in some sweet milk, the crushed fragments of a pound of flour boiled dry in a cloth for three hours.

When a Cow's Milk is Good.—"C. P." Milk is fit for table use the fifth day after calving. Many people do not object to use the first milk, which coagulates readily by heat, as a material for custard.

A New Way to Use Paris Green.—"J. B.," uses this pest poison, by mixing two ounces of Paris Green with a half pint of flour in just water enough to wet the mass; then he fills the pail with water, thoroughly stirs it, and says the mixed flour and green stays mixed, and washes from the potato-vines with difficulty. [We should say one ounce to a pail of water.—ED.]

Railroad Conventions are frequently reported here and there. We suggest that a pretty general one might be profitably held "on or along" the Long Island Railroad. Those attending might then learn some of the secrets of the success of the present management; how they contrive to please everybody—almost; to reduce the number of trains, and the expenses, and yet run just the trains everybody seems to want, when and where they are wanted, and *as* they are wanted. The result is, general satisfaction, and a much larger business than ever before. One of the secrets of success we hinted at some months ago; viz, the managers considered the interests of the road and its patrons, farmers included, as being *mutual*, and they had the necessary skill, experience, and *common sense* to carry out this idea.

Driving Posts by Machinery.—"J. N. M." To drive posts by means of a small portable pile-driver, can hardly pay. It is too much like using a trip-hammer to crack nuts. The power of one man is sufficient to drive any fence-post, and if a pile-driver is used there must be three men employed, and a horse or two. There would be a loss of at least of one man's labor, without counting the cost of the machinery.

The Medical Register of New York, Connecticut, and New Jersey, William T. White, M. D., Editor, is published under the supervision of the New York Medico-Historical Society. As we have a large number of physicians among our readers, we call their attention to this work as one not only likely to be useful to them, but as an example of what should be done for every State in the Union. This work not only gives the name of every physician in the States mentioned, but the college from which he graduated, the societies of which he is a member, etc. In New York City we have not only the address of every regular physician, but a directory of streets giving the name of every doctor in each locality. We find the work so full of information of various kinds, that we can commend it to the profession generally.

Plaster Upon Clover.—"C. J. B.," Rensselaer, Ind. Plaster may be usefully applied upon the young clover as soon as the grain is cleared from the field. There is no other time in the life of a plant when a fertilizer can be more usefully given than when it is young and struggling for existence. 100 pounds of plaster per acre is a proper quantity to use. The yield of seed is improved by it as well as the growth of the fodder.

A Georgia Flea Trap.—The "Savannah News" reports the following as from another paper, name not given: A gentleman placed a plate of molasses under a house where the fleas loved to congregate, drove a little stake on each side, and fastened a sheet of writing paper to the stakes, so that it stood vertically (or on its edge) over the plate. The insects, true to their instinct to make for anything white, began to jump against the paper, and to slip down into the molasses. The scheme was a success, and thinned out the marauders rapidly. The plan sounds plausible, and may be worth trying. We can't vouch for the instinctive attraction to *white*.

Butter Coloring.—"R.," Auburn, Cal. Several preparations for coloring butter have been offered in our advertising columns during the past year. These are probably preparations of *Annatto*, the colored pulp that surrounds the seeds of a South American plant, or *Annattoine*, the coloring principle separated from this pulp. Here is one formula for preparing it: Dissolve one pound of best *potash* and half a pound of *sal soda* in ten quarts of water, pouring off all the clear solution possible. Put one pound of *Annattoine* in two gallons of water; let it stand in a cool place for two days, with occasional stirring. Mix the two liquids together, stirring occasionally, for two days, then pour off the clear portion and keep in a stone jar, or in glass bottles, put them in a dark place. At churning stir in a tablespoonful of the liquid to each gallon of cream, using more or less according to the depth of color required.

Conn. Oleomargarine Law.—The last Connecticut Legislature enacted that: "No person shall offer for sale or have in his possession for sale an article known to commerce as 'Oleomargarine,' being a substance manufactured from suet or tallow and resembling butter, without having the word 'Oleomargarine' plainly stamped or written on the enclosure. All persons guilty of violating the preceding section, shall be fined the sum of fifty dollars for each offence, one-half to him who shall prosecute, and one-half to the town where the offence shall be committed."

Paris Green.—"F. W. M.," Hudson, N. Y. It is no new fact, that when Paris green is brought in contact with a cut or abrasion of the skin, the person may get poisoned. The attention of the readers of the *American Agriculturist* has been frequently called to this, and proper warning given again and again. Paris green is dangerous, as a sharp axe is, and needs to be handled with care; but it should no more be tabooed on this account than the axe.

Yield of a Cross-Bred Cow.—A correspondent from Cumberland, Md., sends a statement to the effect that a cross-bred Jersey and Shorthorn cow, owned by a resident of Frostburg, in his vicinity, gives a daily yield of 24 quarts of milk, from which 18 pounds of butter has been made in seven days. The cow is five years old, and has been fed on pasture alone.

Kerosene for Hen Lice.—"J. B.," Naugatuck, Ct. While the kerosene will destroy vermin by the thousand, its effects are not lasting, as it soon evaporates. To be effectual it should be applied to the roosts and wood-work frequently, say once a week. The red color of some of the lice is due to the blood sucked by them from the fowls, as mosquitoes become red after dining on human blood.

To get rid of Poultry Vermin.—"L. A. G.," La Salle, N. Y. To cleanse a hen-house or a barn, of lice, you may wash the inside in all infested parts with a strong solution of carbolic acid; then close the building for a day, and afterwards whitewash the interior, repeating the same two or three times a year. With such treatment, and keeping the coops free from droppings, no trouble will be experienced. Lice on laying fowls can be destroyed by the use of carbolic nest eggs.

Cramps in Turkeys.—"G. G.," Greenville, Ill. Your young turkeys, which, when two weeks old, had their "legs all drawn up and toes twisted out of shape," had the cramps or rheumatism, probably caused by close in and in-breeding, or confinement in damp quarters, or from being reared by hens. It is held by some that as a hen always broods in the same place at night, the young turkeys thus take injury, perhaps generate some poison, which results in the disease. On the first appearance of the cramps, bathe the parts in hot mustard water, by letting the chicks stand in it; feed two grains of bromide of potash in soft food daily, and move the brooding coop each day. (A hen turkey left to herself will not brood twice in the same place.) I. K. FELCH.

Chicken Cholera.—"P. S.," Fort Erie. Chickens which have a diarrhœa, voiding sulphur-colored droppings, and mope for a day or two and then die, probably have the cholera. Of the many reported "specifics" for this disease, very few, if any, will effect a cure. To prevent the scourge, feed a tablespoonful of sulphur to 25 fowls, twice a week in their food; and keep crushed charcoal where the poultry can eat it when they like.

Canada Thistle.—"J. L. M.," "J. D.," and others. Cut *now*, before it goes to seed, and *burn*—that will prevent further seeding. There is no special application to kill this or any other weed, that will not injure useful plants. Canada Thistle usually appears in a patch, in the field or on the roadside. It is rather late; still, go at it, mow and burn. If it springs up after the mowing, mow again, and do this as often as it starts this season. Next spring, look for it, mow and keep mowing; whenever it is six inches high, cut it. By keeping at it, you *can* subdue *it*, but if you have not the needed persistence, it will get the better of you. Where the thistle appears in small patches, we have known it to be subdued by making these the regular places for salting sheep.

Farm Accounts.—"Young Farmer." It is as necessary for a farmer to keep accounts as for any other business man. Not one farmer in a hundred, or perhaps in a thousand, knows how he stands with the world, how much he owes, how much his crops cost him, which of them are profitable, which grown at a loss, how much they yield, or what a proper day's work of a man is. Few can tell how much grain a man can, or should thrash in a day, or decide any such common question; and the majority of old farmers have spent their lives in guessing, or perhaps not even caring to do so much as that. To succeed fully in any undertaking, one *must* keep accounts. To do this is very easy. Get a small book, and have one page for every crop and every kind of stock. Have another in which every day record all that is done, every purchase, every sale, the quantity of feed used, cost of work done in each field, and the value of each crop. From this book the items are carried to the separate accounts in the other book to which each belongs, and in each account the total at the end of the year will show the charges and credits for each field, for each kind of stock, and for each crop. There is no need to keep these accounts in any complicated way; the more simple and plain they are the better.

Composting Dead Animals.—"T. B. P.," Goldsboro, N. C. The best method of utilizing the carcasses of dead animals is to put them in a compost heap of stable-manure or muck, either whole or cut in pieces. The heap should be wet from time to time to forward the decomposition. There need be no offensive smells if there is sufficient muck, or if the heap, when manure is used, is well covered with earth. In six months at farthest, the carcass will be thoroughly decomposed, and converted into an excellent fertilizer.

Poultry in Stables.—"Reader." It is best to avoid keeping poultry in or near stables, because they are generally neglected, and become infested with vermin, which get upon the cows or horses. But it is only for this reason, and if the fowls are kept clean, there need be no such objection. Poultry houses may be kept perfectly free from vermin by painting or whitewashing the interior, making the floor of cement, and keeping it cleanly swept and sanded at least once a week.

Fine Asparagus.—The winners of the prizes for Asparagus at the Spring Exhibition at Mineola, Queens County, N. Y. Fair, were Valentine Frost, Locust Valley, and George H. Townsend, Glenhead, both of Long Island. When the exhibition was over, they sent us their exhibits, and though we may have seen larger single bunches, we do not think that we have before seen so much large and really fine asparagus together. Both these prize winners attribute their success to the use of "Mapes' Special Fertilizer for Asparagus," which was the only fertilizer used upon the crop.

James Fleming, well known as a gardener, and later as a seedsman, died on July 10th at New Canaan, Conn., at the age of 45. Mr. F. was a native of Ayrshire, Scotland, and came to this country while quite a young man; he had charge of some of the finest private collections in the country, and in the capacity of gardener, as well as that of seedsman, he made a large circle of friends.

Gold Detecting.—"A. W. R.," Placer Co., Cal., asks, "what acid is used in determining the presence of gold in minerals or soil?"—If gold is in its *native* state, the form in which it is frequently found, the grains will not be brittle, but will flatten if hammered; they will not dissolve in any ordinary acid, but only in a mixture of nitric and muriatic acids. To detect gold when combined with sulphur, iron, etc., requires a process too long to describe here, and altogether too difficult for one not accustomed to such work.

Drained Marsh.—"M. W. J.," Mayfield, Mich. The drained marsh intended for cranberries, but which will not grow either corn or oats, will probably improve after a year or two of cultivation. It may be that the soil contains too much of the injurious peroxide of iron, which frequently occurs under such circumstances, but will be changed to harmless compounds, after continued exposure to the air. An application of lime—say, 25 bushels per acre—might be beneficial. Ashes on such land seldom are of much value. Corn, oats, and rye usually succeed best on land like this for the first few years.

Horses and Cattle Together.—"H. F.," Evansville, Ind. So long as the animals are properly secured, there is no good reason why horses and cattle can not be kept under the same roof, without injury to either.

The Best Agricultural College, is asked for by "L. H. J.," of Wellsboro, Pa., "for a young man who has a good English education, and has had some years' practice on a farm; who is not afraid of work, and wishes to become a *first-class* farmer, or none at all." We can not say which is best, having had experience with only a few. Would recommend the Mass. Agricultural College, Amherst, Mass., or the Michigan Agricultural College, Lansing, Mich., or Maine College, Orono, Me.—these being known to us personally as doing good work as *agricultural* colleges.

Carbolic Acid for Sheep-dip.—"J. W. C.," Bates Co., Mo. We would advise you not to use unprepared carbolic acid for a sheep-dip. It is unsafe for such purpose, as one cannot tell how diluted or concentrated it is, and it may be absorbed by the skin and act as a poison. A good article is "Buchan's Cresylic Sheep-dip," of which carbolic acid is the basis. For some reasons it is preferable to tobacco.

Sheep Scab.—"J. S. McC.," Iola, Kansas. When Sheep pens and pastures are once infected with scab, three years may elapse before the insect and the eggs will perish. But the pens may be freed from the infection by a thorough washing with lime wash, containing carbolic acid at the rate of one hundredth part, mixed with it. The scab disease may be cured by washing the sheep in the preparation referred to in the preceding item. The sheep should be thoroughly soaked; the scabs be broken up and the raw surfaces well washed.

Shorthand.—"L. H. Y.," Yostville, Pa. Any person of ordinary intelligence can learn to write shorthand, but it requires a great deal of practice to become expert. Graham's book is good; some prefer Munson's.

Cutting Cows' Tails.—"A. E. H.," Harmony, Kan. We mean what we say, when we state that it is unnecessary ever to cut off a cow's tail. There is no such disease as tail-ail; nor do we, or any intelligent veterinarians, know of any reason why the tail should ever be cut. "B. V. B.," Monson, Mass., who thinks very highly of the *American Agriculturist*, asks, what to do instead of cutting the tail, to prevent the hair from curling? Well, if one doesn't like the curl, he may cut it off; but we do not see why a cow should not wear one curl, especially as it does no harm.

All We Know.—A subscriber, residing we don't know where, wants us to inform him "all we know about farming, and also the quantity and best ingredients of fertilizers." "W. A. W." does not ask much of the editors in his first request; but they cannot answer the second, unless he tells something of what *he* knows about what he wants to use the fertilizer for, and where he lives.

The Mole Drain-Plow.—"W. B. E.," Plymouth, Ill. The mole drain and sub-soil plow is effective in stiff clay lands. Upon light soils the opening made by the plow soon caves in and fills up.

Breachiness in Cows.—"G. W. H.," Stony Point, N. Y. We can suggest no plan to keep cows within bounds that are able to creep under bars only 18 inches from the ground. We fear such cows might fly over the stone walls. For the walls, with ordinary cows, it might be useful to plant stakes on each side, to which a rail is fastened with wire. For the bars it might answer to put a lower bar six inches from the ground. A cow that will creep under that is incorrigible, or too small to be worth keeping. If they work the bars out, bore holes in the ends and insert pegs.

Potash on Fruit Trees.—The "Gardener's Chronicle" (London, Eng.), quotes a correspondent of an American paper, as to the value of *potash* on trees, and his method of applying it, which is to slice up "a few bars of common soap," and bind the pieces in the branches where the rain will dissolve the soap and carry it down over the bark. This is no doubt excellent practice, but it is very strange that so accurate a paper as the "Chronicle" should regard this as a method of applying *Potash*. It surely knows that hard or bar soap does not contain potash. All hard soaps are soda soaps, but are not on that account the less useful to the tree.

Fruit-Growing in the United States.—The magnitude of the fruit-growing interest is not appreciated by many people. Col. Marshall P. Wilder, Pres. of American Pomological Society, in the last Report of the Society, makes the following estimate: Acres in fruit, including grapes, 4,500,000. Apple and Peach trees each 112,000,000. Pear trees, 28,000,000. Grape-Vines, 141,000,000. Value of annual products: Apples, $50,400,000; Peaches, $56,135,500; Pears, $14,130,000; Strawberries, $5,000,000; Grapes, $2,118,900; other fruits, $10,000,000. Total, over $138,000,000, equal to half the average value of the entire wheat crop. This would give an *average* of over $3 worth of fruit for each man, woman and child in the whole country—or over $1.00 worth of apples, and the same of peaches.

Houdans and Hedge.—"B. H.," Iowa. The fowls take their name from a town in France. With us it is usually pronounced as if spelled *Hoo-dan*, but the French pronunciation, as well as it can be expressed in print, is *Hoo-dong*, as if it were written dong, with the *g* silent or nearly so. A sound which can only be properly learned by hearing it pronounced.... Your hedge may be cut in the fall.

Potato Diggers.—"R. D. M.," Wilmot, N. S. To use such an implement, good judgment is required to adapt it to the peculiar circumstances of each case. A man may be a good plowman, and yet require practice to become expert with a potato-digger. If it runs either too deep or too shallow, and will do both, it is certainly possible to make it hit a proper depth. We advise you to try again this season.

P. and P. B.—Petunias and Potato-Bugs. "E. C., an old Subscriber" in Wis., sends us a slip cut from some paper, to the effect that some one's potatoes escaped because "Wild Petunias" (whatever they may be) grew near the patch, and the bugs, being attracted by the Petunias, were poisoned by them. We do not know what is meant by "Wild Petunia," as we have no native species of Petunia, but in gardens the plant is frequently self-sown, and becomes in a measure a weed, and this is probably what is referred to. However, our correspondent states that he, several years ago, found the ground under a Petunia in his wife's flower-bed covered "nearly two inches thick (!) with dead potato-bugs, though said bed was on the other side of the house, and some distance from the potato-patch." He asks, if it would not be well to plant Petunias among the potatoes. Here is something worth following up, that we may learn its value.

Potatoes above Ground.—W. S. Parsons, of Md., sends us a potato vine on which are potatoes in various degrees of development, from fair-looking tubers, of the size of a butternut, down to that of a hazelnut, part tuber, and part branch. Such specimens are not of rare occurrence, when the growth of vines is so luxuriant as to exclude the light from the lower part of the stems. The potato proper, or tuber, is an underground stem, greatly enlarged by the deposition of starch. In cases like the present, the stem, being in the dark, does not develop as it would if exposed to the light, but thickens up, and makes a more or less perfect tuber. We figured a similar instance as long ago as April, 1863.

Blasting Logs.—"Progress" writes that a better way to tamp a hole for blasting a log, than driving in a plug beside the fuse, is to tamp with dry clay, brick-dust, or sand, even. He says the plug will blow out, but the tamping will hold every time.

Plums Do not Bear.—"S. A. D.," Lowell, Mass., writes: "Some Damson plum trees, six years old, are healthy and vigorous, and situated in a garden that is well cultivated. They were loaded with fruit one year; since then they have had none. What can be done to make them bear?".... This is one of the many unsatisfactory inquiries that we are asked to answer. The writer thinks that the whole story is told, but he has really told but little. If the trees have bloomed freely, since the "one year" of bearing, but of which nothing is said, we should look to the *Curculio*, as the probable cause of unproductiveness. The attack of this insect begins as soon as the fruit is set, or is as big as peas. We should look for no other reason for lack of fruit, unless assured by good observers that it was *not* the curculio. If so, as likely to be the case, there can be no fruit, unless the curculio is daily jarred from the tree, as we have described over and over, and are willing to describe again. If the trees bloomed, the chances are 99 to 100, that the curculio was the trouble. If the trees did not flower, then we should look for another cause.

About Bleaching.—"J. H.," Minneapolis. We have so frequently stated that we do not answer anonymous letters, that we infer you are a new subscriber, and not aware of this rule. Had you given your address, we should be able to ask for a more definite question, as it is not possible to answer one so general in terms as yours.

Exhibition of the American Institute.—It is announced that the 47th Exhibition of the American Institute will be opened September 11th, and closed November 16th, 1878.

Department of Agriculture.—The resignation of J. R. Dodge, statistician, is announced just as we go to press. No reasons are given for a step which deprives the Department of an industrious, useful officer.

Natural Sciences at Brown University.—The Corporation of Brown have recently appointed Prof. A. S. Packard, Jr., the well known entomologist, of Salem, Mass., to the new chair of Geology and Zoölogy.

To Keep a Road horse in Condition, we would say to "A. G.," Hamilton, Ont., requires regular feeding with the best food, good grooming, and a clean, well-ventilated stable. A good course of feeding may be as follows: A three-peck basketful of cut-hay moistened and mixed with three quarts of ground feed, of corn, oats, and wheat-bran, to be given morning and evening. At noon, four quarts of sound, crushed oats. At night, a few pounds of long hay. With each feed, a tablespoonful of salt should be given. If the animal is rough and hide-bound, give a quart of linseed-meal at each meal, in place of as much ground feed.

Nuts and Nubbins.

The musketo, like charity, begins to hum.

Ten hot sun-days, all together—in June 1878.

That horse is not much at running fast, but he can stand the fastest of any horse you ever saw.

Scientific agriculturists speak of the "fruit belt" of the South. It is where green apples strike the small boy.

A little girl yesterday, while watching the rain, turned to her mother, and said: "Ma, I guess the weather's so warm it's melting the clouds."

A cynical old practitioner says, "A lady who practises medicine commits two faults: she increases the number of doctors and diminishes the number of women."

"Your dog, what does he want here?" inquired a dry goods dealer of a customer whose big Newfoundland was upsetting things generally. "Muzzlin," was the answer.

Statistics show that the number of idiots is increasing; and yet some newspapers continue to make war on quack doctors. What's a quack doctor for but to kill off fools?

"When tempted to kick a man," says a Scotch philosopher, "stop and remember that you may some day want a favor of him." Tempted men generally stop to see if the other fellow is the biggest.

A boy of four will ask questions which the man of forty can't answer. Even Darwin's children can puzzle their father if they will only say to him: "Where that first hen came from, is what I want to know."

"Vat a monster language," said a Frenchman; "here I read in ze newspapere zat a man commit a murder, was committed for trial, and zen committed himself to a reportair. No wonder everyzing in America is done by committee."

On the Fourth a native American was upbraiding a naturalized German for celebrating the day so enthusiastically. The German replied: "You, sir, are an American from necessity; I am one from choice. And beside, sir, when you came into the country, you hadn't a stitch of clothing to your back, while I was comfortably clad." The American has been thinking about it ever since.

Work on the Boston Post-office extension is progressing slowly but surely. Four masons squinted over a block of stone yesterday for three hours to decide if it was level, and then went to dinner. A couple of men who spent the principal part of the afternoon in getting in and out of their overalls, got as far as spitting on their hands before it was time to "knock off." They will lift a couple of planks early in the week.—*Boston Paper.*

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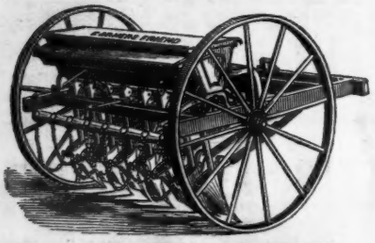

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Boilers larger than other makers.

Fig. 2.

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Steam Engines, Horse Power and Threshers of all kinds. Also, Ploughs, Cultivators, &c., &c.

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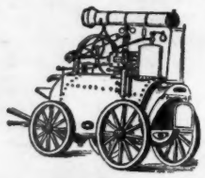

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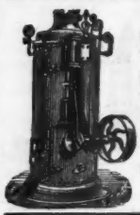
N. B.—The Economizer Boilers are manufactured for us (in duplicate parts), under United States patents, by Porter Manufacturing Company, Syracuse, N. Y., thus securing perfection and uniformity. The demand is unprecedented, even in these dull times.



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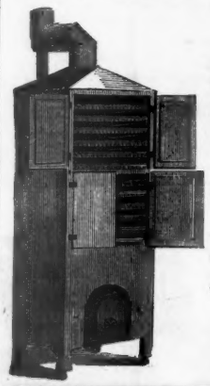

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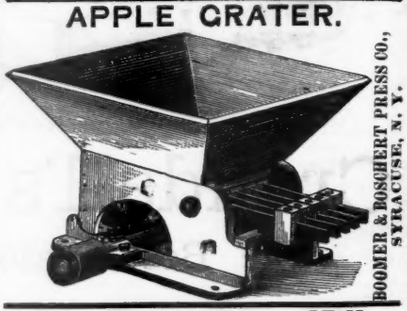

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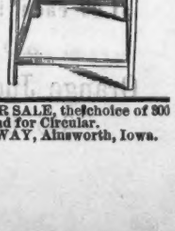

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